Marine Review

SHIP OPERATION SHIPBUILDING CARGO HANDLING

The National Publication Covering the Business of Transportation by Water

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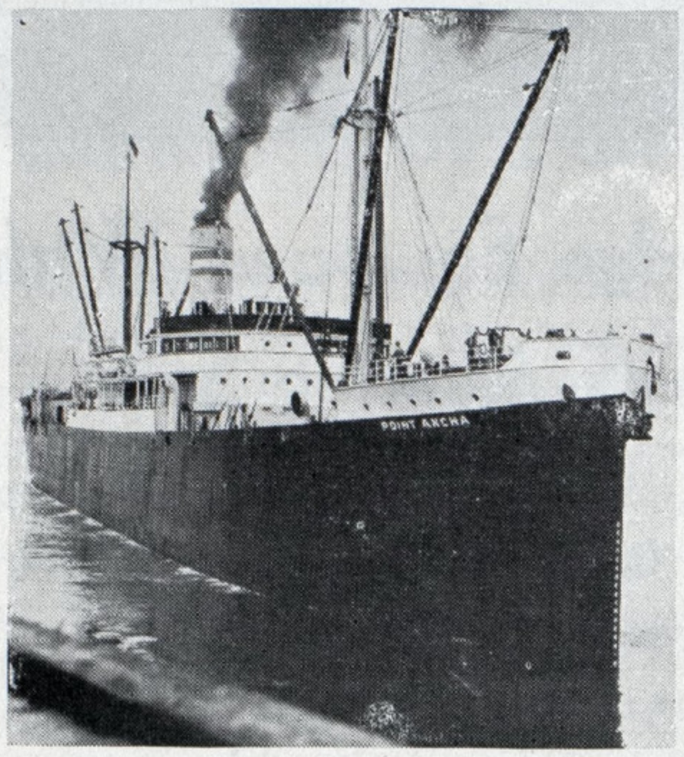

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SHIP OPERATION - SHIPBUILDING - CARGO HANDLING

Volume 63 **September, 1933** **Number 9**

Shipping Board Functions to Be Continued by Bureau

TO PARAPHRASE an ancient cry—the shipping board is dead! Long live the shipping board! There are those, and they represent an important body of opinion, who were not in favor of the loss of identity of the board as a separate and independent government agency. It may be said that opinion throughout the American shipping industry is overwhelmingly for a continuation in a vigorous and intelligent manner of all of the activities of the old board.

In the nearly 17 years of its existence, the board gained the respect of the industry. By and large it functioned in such a way as to gain the active co-operation of shipping men. It was, of course, criticized bitterly at times and many individuals had grievances from time to time, but in later years the industry has come to feel that in the board it had a spokesman and a champion for its cause, not only with the legislative and executive branches of our own government, but in matters of world concern. It would be a pity should this prestige and power for good for the American merchant marine be lost by the transfer of its activities to a newly created bureau of the department of commerce.

Nothing could better illustrate the confidence of American shipping in the shipping board than its practically unanimous request that it be named the coordinator of the industry in the difficult matter of arriving at and operating under a code in connection with the industry's participation in the recovery act. This strikingly shows that the industry must have some sort of a government body headed by a man of force and vision, thoroughly acquainted with its problems. What has been built up to this end in the years of the existence of the shipping board must not be lightly cast aside.

In the new arrangement the old shipping board disappears but the functions delegated to it by congress will be carried on under the designation of United States shipping board bureau of the department of commerce. It is understood that the former chairman of the board, Admiral Hutch I. Cone, will direct the work of the bureau and will be president of the Merchant Fleet Corp. In this work Admiral Cone will be directly responsible, not as heretofore to the congress and to the President of the United States, but to Ewing Y. Mitchell, assistant secretary of commerce, in charge of all marine activities of the department. Back of Mr. Mitchell, of course, is Secretary of Commerce Roper. The secretary has made it quite clear that the transfer of the functions of the board and the Merchant Fleet Corp. will be done with the least possible inconvenience to, using his own work words, "America's great shipping industry."

We should have in the United States, in dealing with all maritime affairs, a single government unit, of real power and prestige and of high quality personnel, comparable to the British board of trade. The shipping board as an independent body might well in time have been developed into such a unit. Now that it will function within the department of commerce, it may be that it can serve as a nucleus around which may be built a really efficient government agency dealing with all ramifications of the merchant marine. To accomplish this some legislative action would be necessary and still more important a leader must be found of unique qualifications in planning, organizing and executing its functions. It would need at the beginning the powerful impetus of the personality of such a leader. In any case, the American shipping industry must not be allowed to flounder about because of bureaucratic precedence and lack of initiative.

A SHIPPING CODE

Difficult Problem for the Shipowner

By A. H. Jansson

TO BE or not to be subject to a code of fair competition under the N.R.A. is a momentous question facing the shipping industry of the United States. It presents many difficulties, and various organizations within the industry have and are devoting a great deal of effort to find a solution.

As this is written no clear action is indicated, though a number of developments may be mentioned as follows:

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1. On Aug. 16, the office of General Hugh S. Johnson, administrator of the national industrial recovery act notified the Maritime Association of the Port of New York that Attorney General Homer S. Cummings had been asked for a ruling on whether or not the shipping industry of the United States comes under the provisions of this act.

This was in reply to a request on the part of American shipping organizations including the Maritime exchange, for a definite ruling by the administrator. At this time the various shipping groups suggested to General Johnson that if they are to come under N.R.A. the shipping board be named co-ordinater of the industry because of its intimate knowledge of shipping affairs.

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2. TO correct the impression that foreign steamship lines are opposed to the program of national recovery, C. J. Beck, director of the Hamburg-American line, issued a statement in which he pointed out that nothing could be further from the truth and that foreign steamship lines trading with the United States together with their American associates are members of conferences for promoting orderly conditions in the respective trades. Also that foreign lines are without exception, members of the New York Shipping association, through which body they are working under an agreement with the International Longshoremen's association which expires Sept. 30. Foreign lines, Mr. Beck said, are wholly in sympathy with any plan which will restore industrial prosperity to the United States for it is self-evident that their own welfare is linked with that of the country they serve.

He made it clear that in only one respect does the position of the foreign lines differ from that of the American flag lines. Their personnel afloat is obviously not subject to the provisions of the act. He went on to say that the foreign lines are keenly desirous of co-operating with the movement to promote industrial recovery in the United States and that in common council with their American flag associates they are actively seeking a practical method of reaching this end. Foreign lines, he said, are dealing with this situation through the New York Shipping association and are awaiting General Johnson's reply to the association recommendations.

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3. Representing about 4000 deck and engine room officers, the United Licensed Officers, a body recently organized by a combination of long established deck and engineer officers' associations and headed by Capt. John F. Milliken, president, has presented (Aug. 10) a code of fair practice of its own for the licensed officers division of the shipping industry.

Bert L. Todd, secretary of the United Licensed Officers, stated that the officers code had been prepared as a guide in protecting the interests of deck and engineer officers on American ships should a general code be developed for the industry. Efforts to discuss a new working agreement with the American Steamship Owners' association having failed, and after delaying action on their own initiative in order to reach some basis of cooperation with the steamship owners, they were requested by General Johnson to file their own code. Reference will be made later to the terms of the officers code.

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THE question of whether the shipping industry shall or shall not operate under a code is still to be determined as this is written. As it stands now the shipping industry is waiting for the decision of the attorney general. If it is decided that the industry shall operate under a code the majority of opinion seems to favor the appointment of the United States shipping board to have supervisory control or to act as a co-ordinator for the industry.

As previously reported, the steamship owners appointed a committee, which has been at work now for a number of weeks, to study the matter of preparing a suitable code. This committee soon developed the fact that while it might be possible to prepare a suitable working code for those American lines operating in the restricted coastwise and intercoastal trades, it could not overcome many of the obvious difficulties in connection with the offshore trade where American ships are in competition with vessels under foreign flags not subject to the laws of the United States.

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MEMBERS of several groups in the shipping industry are seeking to overcome the many obstacles in formulating a general code for the industry or a series of separate codes for the several branches of the industry.

It has become apparent during the course of these studies that it is desirable to have some measure of co-ordination of the operations of different branches of land and water transportation because of the overlapping and sometimes conflicting interests of various forms of transportation such as railroads, water lines, highway and air transportation.

The one clear thing which seems to stand out in this maze of uncertainty is the unanimous support of all of the representative shipping organizations on the Atlantic, Gulf and Pacific coasts of the recommendation that the task of co-ordination and administration be undertaken by the shipping board.

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THE following substance of a communication, dated Aug. 15, from Emmet J. McCormack, president of the Maritime Association of the Port of New York indi-

cates the many difficulties in formulating a workable code for the shipping industry.

"The Maritime Association of the Port of New York has asked all branches of the shipping industry to assemble in their separate groups and to prepare codes; these codes when completed to be submitted to the members of the Maritime exchange for final consideration and for the adjustment of any differences that may exist. When this has been accomplished the various codes are to be consolidated or included in a master code embracing the entire shipping industry exclusive of shipbuilding and ship repair yards.

"There is considerable doubt in the minds of shipowners and operators as to the possibility as well as the feasibility of preparing a code to govern ship operations due to the many complicated and seemingly insurmountable obstacles which this would involve.

"Of all business enterprises, shipping is probably the most regulated. Certain regulation as to hours of employment, watches on board ship, and many other provisions are mandatory by law. Any provision which would call for increased crews would involve a question of remodeling vessels to provide the necessary accommodations. Common experience has proven that it would be a needless expansion of ship personnel. There is also the serious disadvantage this would impose on American shipping in competition with foreign vessels in the offshore trades. Consideration must also be given to the restrictions provided by the Copeland act in the intercoastal trade and that the coastwise rates of regular lines are regulated by the rates of the rail carriers and could therefore not be increased to compensate for any advance in operating expense; thus affecting the parity now maintained by the rail and water carriers. In effect, increased expense without a corresponding increased compensation through higher rates would have the tendency to destroy this valuable contribution to national transportation.

"Similar conditions would also obtain in inland as well as deep sea shipping operations. This situation is one which must be handled with the greatest care by those most competent, otherwise it is likely to prove disastrous.

"The allied interests are making steady progress and will be prepared to submit a unified code when it is called for."

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United Licensed Officers Code

THE code submitted by the United Licensed Officers calls for a uniform minimum wage scale for all licensed officers and a maximum work week of not over 40 hours. In addition to these two main features there are also a number of other provisions affecting the work of officers on board ship.

It is claimed that if this code is placed in operation it will result in returning to work in the American merchant marine at least 4000 deck and engineer officers now unemployed. It would also eliminate unfair competition by providing a uniform scale of wages.

In order to carry out the terms of the code it is suggested that a board be appointed to be known as the Maritime board to be comprised of a representative number of ship operators and an equal number of officers' representatives to be presided over by an impartial chairman designated by the President. This board would consider modifications of the code, unfair practices and infractions of the code.

It is pointed out that the American shipping industry is protected in its coastwise and intercoastal branches by the coastwise laws and in foreign trade by mail contracts. The standard wage of the industry for ten years has been based on the United States shipping board's scale which designated the minimum rate of pay and number of hours and working rules for different grades of officers in the various classes of ships.

The code incorporates section 7 (a) of title I of N.R.A. with reference to the rights of employees to organize and bargain collectively through representatives of their own choosing, etc.

Several novel features have been incorporated under working rules. Maximum hours of work shall not be over eight hours in any working day and shall not exceed 40 hours in any one week. At sea if an engineer or deck officer is called to work seven days of eight hours, he shall be paid at the regular rate for the first day over the prescribed 40 hours. The eight hours work on the second day or Sunday shall be made up to every licensed officer having had twelve months continuous service with any one company, by giving him a vacation with regular pay for a period of time equal to the number of Sundays worked at sea. If an officer is laid off he shall be entitled to pay at the regular rate for each Sunday he has worked at sea.

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THERE are a number of other provisions, such as, that a first officer and a first assistant engineer shall not stand a watch and that there shall be no work over the prescribed eight hours by officers except as necessary for the safety of the ship. All officers are to be relieved of duty at night in home ports and all ports where watches are broken, also on Sundays and holidays, including New Year's day, July Fourth, Labor day, Thanksgiving day and Christmas. Another rule is that all ships equipped with machine shops must carry a journeyman machinist in addition to the complement of licensed engineers. There are also a number of other rules affecting working conditions such as prohibiting the practice of carrying work aways.

In the matter of wages the code proposes to use a system of classification similar to that in force by the shipping board for the past 15 years to determine and fix a minimum scale of pay for all licensed officers.

The wages suggested for the different classifications per month for a master ranges from $345 on a class A vessel to $300 on a class E vessel; for a chief engineer from $310 to $275; for a first mate and first assistant engineer from $205 to $185; for a second mate and second assistant engineer from $185 to $165; for a third mate and third assistant engineer from $175 to $155; for a fourth mate and fourth engineer from $170 to $150; and for a junior engineer $150.

The three cardinal principals of the N.R.A.; reduction of unemployment, increase in purchasing power and elimination of unfair competition, representatives of the United Licensed Officers believe will be effectuated by establishing a 40 hour week and a minimum wage scale as suggested in this code.

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IN a communication, Aug. 17, from C. C. Kriemler, president of The Harbor Tug & Barge Co., San Francisco, the following views are presented on the possibilities of a code for this branch of the industry in that section:

"The boat owners in this district have not arrived at any definite decision on how to operate under a code, but all seem anxious to get something settled so that they can figure on future operations.

"We are keeping in touch with what is being done in other parts of the country through the Pacific Coast Shipowners association which is receiving all the available information on the progress being made at the Maritime Association of the Port of New York, where all proposed codes pertaining to our business are being cleared."

On July 28 the deck scow owners of the port of New

York met at the Maritime exchange to discuss the formulation of a code to apply to their branch of the shipping industry. At that meeting, Thomas O'Connell presiding, a committee was appointed to prepare and present a draft for a proposed code.

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ON THE Great Lakes the various shipping interests are watching developments, but nothing definite has been undertaken as far as known. It might be said there is a general feeling, since transportation by water in all its branches is now regulated in many ways by Federal statute, for instance, in regard to licensed officers, inspection of vessels, etc., that it is difficult to see how the industry can be accommodated to a blanket code.

With reference to strictly inland water transportation, that is, on rivers like the Mississippi and the Ohio, it would seem that, since the federal government through the agency of the corps of engineers is a leading operator, whatever action might be taken in the establishment of a code should be initiated by the federal authorities concerned. The principal federal officer having to do with these operations is Major General T. Q. Ashburn, chairman of the board of the Inland Waterways Corp. and his responsible chief is Secretary Dern of the war department.

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THE situation as far as the entire operating end of the shipping industry is concerned, as this is written, seems to be that nothing definite has been accomplished in formulating a fair code of competition. The reason for this is not lack of desire to co-operate fully with the President in his effort to carry out practical measures for industrial recovery, but because of the complicated and variegated nature of the business and its many ramifications, present federal control, and competition with foreign agencies. The whole matter seems to be more or less in a state of confusion at the moment and it is difficult to foresee the outcome.

There is another element to be considered. Different labor organizations within the industry are naturally taking a keen interest in urging the adoption of codes favorable to their own interests. It is natural to assume that the views of these organizations are being or will be submitted to the administrator of the national recovery act. This in turn may have a very definite effect in bringing to a head some kind of concerted action on the part of the owners.

Annual Safety Congress

What has the marine industry accomplished during the past year in the control of accidents? What are the most important present day accident hazards? What are individual companies doing to control these hazards; and what can the industry do, co-operatively, during the coming year in national accident prevention?

These are questions which leading executives of the marine industry will discuss at sessions of the marine section of the National Safety council as a part of the twenty-second annual safety congress and exposition to be held at Stevens hotel in Chicago from Oct. 2 to 6. The general chairman of these sessions will be Frank H. Cogan of the Delaware Lackawanna & Western Railroad Co.; and the secretary will be Carl W. Cetti of the New York State Marine academy.

W. E. Dowd Jr., vice president of the Foster Wheeler Corp., 165 Broadway, New York, manufacturer of marine engineering equipment, died Aug. 14, at his home at Greenwich, Conn. He was 54 years old.

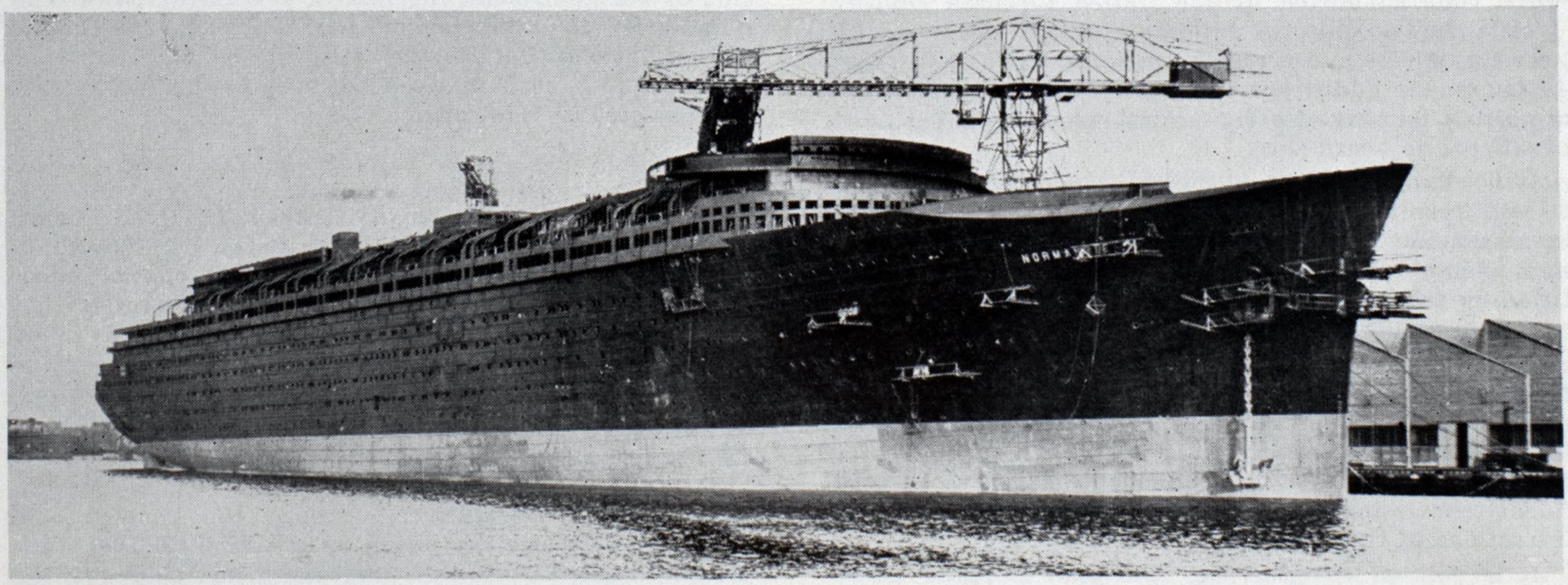
The Permutit Co. has removed its general offices from 440 Fourth avenue, New York, to the McGraw-Hill building, 230 West Forty-second street, New York City.

William F. Krichbaum has been elected president and general manager of the Foster Engineering Co., Newark, N. J., to succeed Charles A. Olson.

To Hold Lifeboat Race

The seventh international lifeboat race to be held off Bay Ridge, Brooklyn, N. Y., on Labor Day, Sept. 4, will be in charge of J. J. Kelleher, general traffic manager of the United Fruit Co., who has been elected chairman. A committee of prominent shipping men will assist Mr. Kelleher in handling the details of the event.

This interesting annual sporting event is becoming better known and more popular each year. A large number of entries are expected from both American and foreign steamships in the port of New York at that time. A fine silver trophy to be awarded to the winning crew's company has been donated by Robert L. Hague, president of the Standard Shipping Co.



French superliner Normandie under construction at St. Nazaire, France, as she looked about Aug. 1, 1933. Date of completion has been postponed to permit entry into service in the spring of 1935. Only 200 to 300 men are now working on her continuously instead of ten times this number were she to be completed for next spring. See Marine Review for December, 1932 for description of the Normandie.

Naval Shipbuilding Program Contracts Awarded

ON AUG. 3, only eight days after bids were opened, Secretary of the Navy Swanson awarded contracts for the construction of 21 naval vessels to seven private shipyards at a total bid cost of $129,777,600, and he also definitely allocated the construction of 16 additional naval vessels in eight navy yards. The contracts to private shipyards were awarded in each case to the lowest responsible bidder. Bids from 12 shipyards were received by the navy department and opened on July 26. The five yards who submitted unsuccessful bids were: the Sun Shipbuilding & Drydock Co., on one and two submarines; the Maryland Dry Docks Inc., on one and two 1500-ton destroyers; The Pusey & Jones Corp., on one 1500-ton destroyer; the Warwick Machine Co., on one and two 1500-ton destroyers; and the Gulf Industries Inc., a recently organized company, on one and three 1500-ton destroyers.

Names of the successful bidders, the number and type of vessels and the total amount of the award are listed in the accompanying tables. The range in bids between high and low in each classification of vessels and for each condition is not excessive considering the special experience and equipment of the yards and the amounts involved. A summary of the successful bids is given as follows:

Amount of Naval Work For Each Private Yard

Shipyard	Number of Vessels	Total Amount
New York Shipbuilding Co.	6	$38,454,000
Newport News Shipbuilding & D.D. Co.	2	38,000,000
Bethlehem Shipbuilding Corp.	5	27,304,000
Bath Iron Works Corp.	2	6,858,000
Federal Shipbuilding & D. D. Co.	2	6,821,600
United Dry Docks Inc.	2	6,800,000
Electric Boat Co.	2	5,540,000
Totals	**21**	**$129,777,600**

Aircraft Carriers

Newport News Shipbuilding & Dry Dock Co., Newport News, Va.—Aircraft carriers, Nos. 5 and 6, for the stated price of $19,000,000 each, subject to adjustments for changes in the cost of direct labor and material within certain definite limitations. The next two bids for the same condition were $20,200,000 each by the New York Shipbuilding Co.; and $20,920,000 each by the Bethlehem Shipbuilding Corp.

Heavy and Light Cruisers

Bethlehem Shipbuilding Corp. Ltd., Quincy, Mass.—Heavy cruiser No. 40 for the fixed price of $11,720,000, without adjustment for changes in labor and material cost. The next three bids for the same condition were $12,100,000 by the New York Shipbuilding Co.; $13,800,000 by the Newport News Shipbuilding & Dry Dock Co.; and $14,600,000 by the United Dry Docks Inc.

Heavy cruiser No. 40 is the sixteenth 8-inch, 10,000-ton cruiser referred to in the London treaty and under the provisions of that treaty this vessel cannot be laid down before Jan. 1, 1934, with completion Jan. 2, 1937.

New York Shipbuilding Co., Camden, N. J.—Two light cruisers of the Nos. 42 to 45 class for the fixed price of $11,677,000 each, without adjustments for changes in labor and material cost. The next three bids for the same condition were $12,780,000 each by the Bethlehem Shipbuilding

Construction Awards for 37 Naval Vessels—Aug. 3, 1933

To Private Shipyards

Private Shipyards	Number	Type	Delivery (Months)	Total Amount
Newport News Shipbuilding & D. D. Co.	2	Aircraft Carriers	36 & 40	$ 38,000,000
Bethlehem Shipbuilding Corp.	1	Heavy Cruiser No. 40	41	11,720,000
New York Shipbuilding Co.	2	Light Cruisers Nos. 42, 45	36 & 40	23,354,000
Electric Boat Co.	2	Submarines 174, 175	24 & 27	5,540,000
Bethlehem Shipbuilding Corp.	4	Destroyers (1850-ton)	....	15,584,000
New York Shipbuilding Co.	4	Destroyers (1850-ton)	....	15,100,000
Bath Iron Works Corp.	2	Destroyers (1500-ton)	27 & 30	6,858,000
Federal Shipbuilding & D. D. Co.	2	Destroyers (1500-ton)	27 & 30	6,821,600
United Dry Docks Inc.	2	Destroyers (1500-ton)	26 & 28	6,800,000
Totals	21			$129,777,600

To Navy Yards

United States Navy Yards	Number	Type	Delivery (Months)*	Total Amount**
New York	1	Light Cruiser	36	$ 12,000,000
Philadelphia	1	Light Cruiser	36	12,000,000
Boston	2	Destroyers	27 & 30	7,000,000
Philadelphia	2	Destroyers	27 & 30	7,000,000
Norfolk, Va	2	Destroyers	27 & 30	7,000,000
Puget Sound, Wash.	2	Destroyers	27 & 30	7,000,000
Mare Island, Calif.	2	Destroyers	27 & 30	7,000,000
New York	1	Gunboat	18	1,500,000
Charleston, S. C.	1	Gunboat	18	1,500,000
Portsmouth, N. H.	2	Submarines	26 & 30	6,800,000
Totals	16			$ 68,800,000
Grand Totals	**37**			**$198,577,600**

*Note:—No time of delivery has been announced officially. Time given is purely an estimate on the basis of time of delivery for similar vessels by private shipyards.

**Note:—No official estimate of cost of vessels to be built in navy yards has been announced. The amounts given above are simply estimates in round numbers based generally on the price per unit in private shipyards.

Corp.; $13,900,000 each by the Newport News Shipbuilding & Dry Dock Co.; and $15,600,000 by the United Dry Docks Inc. Time of delivery in each case was 36 and 40 months for two vessels.

Submarines

Electric Boat Co., Groton, Conn.—Two submarines, Nos. 174 and 175 for the fixed price of $2,770,000 each, without adjustment for increase in cost of labor or material in accordance with the bidder's design. This price is on basis of main propelling machinery being furnished by the government and installed by the contractor. Time of delivery is 24 and 27 months. No other comparable bid was received, though the Sun Shipbuilding & Dry Dock Co. entered a bid for class 1 type of vessel of $2,960,000 each for two vessels with delivery in 27 months.

Destroyers

Of the eight 1850-ton destroyers, the contracts were all awarded on a fixed price basis without adjustment for changes in cost of labor and material as follows:

Bethlehem Shipbuilding Corp. Ltd., Quincy, Mass.—Four destroyers under the act of Aug. 29, 1916, for the fixed price of $3,896,000 each. The only other comparable bid was $3,965,000 each by New York Shipbuilding.

New York Shipbuilding Co., Camden, N. J.—Four destroyers to be built from funds allocated from the national industrial recovery act for the fixed price of $3,775,000 each. The only other comparable bid was $4,135,000 each by the Bethlehem Shipbuilding Corp.

The six 1500-ton destroyers were awarded as follows on the basis of a stated price, subject to adjustments within certain definite limitations for changes in cost of labor and materials:

Bath Iron Works Corp., Bath, Me.—Two destroyers for the sum of $3,429,000 each. Time of delivery 27 and 30 months.

Federal Shipbuilding & Dry Dock Co., Kearny, N. J.—Two destroyers, for the sum of $3,410,800 each. Time of delivery 27 and 30 months.

United Dry Docks Inc., New York, N. Y.—Two destroyers for the sum of $3,400,000 each. Time of delivery 26 and 28 months.

Comparable bids on two of the six 1500-ton destroyers were submitted as follows: Gulf Industries Inc., $3,025,000 each, with delivery in 20 and 22 months; $3,650,000 each by the New York Shipbuilding Co., with delivery in 27 and 30 months; $3,413,000 each by the Bethlehem Shipbuilding Corp., with delivery in 27 and 30 months; Warwick Machine Co., $4,383,000 each with delivery in 27 and 30 months; Maryland Dry Docks Inc., $3,498,894 each with delivery in 27 and 30 months; and the Pusey & Jones Corp. bid on one destroyer at $3,898,234.

Working plans for the 1850 and 1500-ton destroyers are to be furnished by the Bethlehem Shipbuilding Corp. and United Dry Docks Inc., respectively. The above prices for the other successful bidders are subject to a certain definite reduction for value of plans received.

Allocated to Navy Yards

The final allocations of vessels under the national industry recovery act to government yards was also authorized on Aug. 3 without mention of cost and time of delivery, as follows:

Navy Yard, Portsmouth, N. H.—Two submarines as previously announced.

Navy Yard, Boston—Two destroyers, as previously announced.

Navy Yard, New York—One light cruiser and one gunboat. The gunboat had been previously announced.

Navy Yard, Philadelphia—One light cruiser and two destroyers.

Navy Yard, Norfolk, Va.—Two destroyers.

Navy Yard, Charleston, S. C.—One gunboat, as previously announced.

Navy Yard, Puget Sound, Wash.—Two destroyers.

Navy Yard, Mare Island, Calif.—Two destroyers.

Thus awards have been made for the building of a total of 37 naval vessels costing an aggregate of about $200,000,000, and probably an additional $40,000,000 for armament and complete outfitting. Never before in times of peace has so large an order for naval vessels been placed at one time. Another outstanding feature is the remarkable promptness in arranging for the receipt of bids and the actual placing of orders. It is estimated that this program will increase employment in shipbuilding yards by 250 per cent, and that at least 18,000 men will be given employment directly in connection with building the ships and perhaps an equal number will be called upon in other industries in furnishing materials, and equipment.

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A TRIM little warship, the GONCALVES ZARCO, second class sloop, built for the Partoguese government by R. & W. Hawthorn, Leslie & Co. Ltd., England. Successful final sea trials were held Aug. 3, 1933; laid down Oct. 9, 1931; launched, Nov. 28, 1932.

This is the second of two second class sloops built by the same company for the same owner, the first, the GONCALO VELHO, completed her sea trials on March, 1933. These vessels are 267 feet, 7 inches in length overall; 35 feet, 7 inches in beam; and 17 feet deep to upper deck. Both are fitted with single reduction geared turbines and twin screws developing 2000 shaft horsepower. For further details see MARINE REVIEW for January and June, 1933. The R. & W. Hawthorn Leslie & Co. Ltd. also has under construction two first class sloops for the Portuguese government.

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Code of Fair Competition Approved

for Shipbuilders and Shiprepairers

FOR employees on an hourly rate a maximum average of 36 hours per week on merchant work and 32 hours per week on government work with minimum wage rates of 45 cents per hour in the North and 35 cents per hour in the South, are now mandatory in the shipbuilding and shiprepairing industry throughout the United States in accordance with the code of fair competition for this industry approved and signed by the President, July 26. It is estimated that 90 per cent of the capacity of the industry has subscribed to this code and began operating within its terms and conditions on Aug. 5.

As this is written the groups operating within the code are: National Council of American Shipbuilders; New York and New Jersey Dry Dock Association; Pacific Coast Dry Dock Association; Todd plants at New Orleans and Mobile; Pennsylvania Shipyards Inc.; Galveston Dry Dock & Construction Co.; and Great Lakes Shipbuilding & Repair Association.

Small groups in the various ports that are repairers without dry docks are coming in; also the small boat group will probably come in and possibly others. Yards located on the rivers were still considering the matter as this is written but it is believed they are likely to come in at an early date. The organization for carrying out the code is being set up as rapidly as possible and will soon be functioning.

Employment Will be Quadrupled

It is estimated by representatives of the industry that with the new naval shipbuilding program and working under the restrictions of hours of employment in the code, total employment in the industry will be increased materially above the highest levels reached since the war, raising it from a present total of about 15,000 men to appproximately 60,000 men.

The President's executive order approving the code and the final code as approved and agreed to by the industry are given in full below:

Text of Code as Approved

To effectuate the policy of title 1 of the national industrial recovery act, the following provisions are established as a code of fair competition for the shipbuilding and shiprepairing industry.

1. Definition of Terms

The terms "shipbuilder" and "shiprepairer", when used in this code, includes a person, partnership or corporation engaged in the business of building, fabricating, repairing, reconstructing, remodeling, and assembling oceangoing, harbor and inland waterway vessels and floating marine equipment of every type above ten tons, including the building within their plants of machinery, equipment and other ship's parts.

2. General Regulations

The shipbuilders and shiprepairers will comply with the following specific provisions of the national industrial recovery act:

(a) That employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection.

(b) That no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing or assisting a labor organization of his own choosing; and

(c) That employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

3. Regulations of Hours of Work

(a) Merchant Shipbuilding and Shiprepairing

1. No employee on an hourly rate may work in excess of an average of thirty-six (36) hours per week, based upon a six (6) month's period; nor more than forty (40) hours during any one week. If any employee on an hourly rate works in excess of eight (8) hours in any one day, the wage paid will be at the rate of not less than one and one-half (1½) times the regular hourly rate, but otherwise according to the prevailing custom in each port, for such time as may be in excess of eight (8) hours.

(b) Shipbuilding for the United States Government

(1) No employee on an hourly rate may work in excess of thirty-two (32) hours per week. If any employee on an hourly rate works in excess of eight (8) hours in any one day, the wage paid will be at the rate of not less than one and one-half (1½) times the regular hourly rate, but otherwise according to the prevailing custom in each port, for such time as may be in excess of eight (8) hours.

(c) Exceptions

For a period of six (6) months exception may be made in the number of hours of employment for the employees of the shipbuilders engaged in designing, engineering and in mold loft and order departments and such others as are necessary for the preparation of plans and ordering of materials to start work on new ship construction, but in no event shall the number of hours worked be in excess of forty-eight (48) hours per week, and in no case or class of cases not approved by the planning and fair practice committee provided for in section (8).

4. Minimum Wage Rates

(a) The minimum pay for labor, excent apprentices, learners, casual and incidental labor, shall be at the

President Approves Code

July 26, 1933

Executive Order

A CODE of fair competition for the shipbuilding and shiprepairing industry, having been heretofore submitted to the national recovery administration, hearings having been held thereon, and an amended code of fair competition having been submitted on July 25, 1933, said original code and said amended code having been submitted by duly qualified and authorized representatives of the industry complying with the statutory requirements as representing 80 per cent of the capacity of the industry, and said code being in full compliance with all pertinent provisions of the national industrial recovery act, now therefore

Pursuant to the authority vested in me by title I of the national industrial recovery act, approved June 16, 1933, on the report and recommendation of the administration appointed by me under the authority of said act, and on consideration;

It is ordered that the said code of fair competition for the shipbuilding and shiprepairing industry, as amended and submitted on July 25, 1933, is hereby approved.

(Signed) **Franklin D. Roosevelt**

Approval recommended
Hugh S. Johnson

rate of forty-five (45) cents per hour in the North and thirty-five (35) cents per hour in the South.

1. Apprentices and learners shall not be paid less than the minimum wage after two (2) years of employment.

2. Casual and incidental labor to be paid not less than eighty (80) per cent of the minimum wage, the total number of such casual and incidental employees in any calendar month not to exceed eight (8) per cent of the total number of skilled and semi-skilled employees during the same period.

(b) The amount of difference existing prior to July 1, 1933 between the wage rates paid various classes of employees receiving more than the established minimum wage shall not be decreased. In no event shall any employer pay an employee a wage rate which will yield a less wage for a work week of thirty-six (36) hours than such employee was receiving for the same class of work for a forty (40) hour week prior to July 1, 1933. It is understood that there shall be no difference between hourly wage rates on commercial work and on naval work, for the same class of labor, in the same establishment.

5. Prohibition of Child Labor

On and after the effective date of this code, employers shall not employ any minor under the age of sixteen (16) years.

6. Arbitration of Existing Contracts

Where the costs to the contractor of executing contracts entered into in the shipbuilding and shiprepairing industry prior to the presentation to congress of the national industrial recovery act or the adoption of this code are increased by the application of the provisions of that act or this code, it is equitable and promotive of the purposes of the act that appropriate adjustments of such contracts to reflect such increased costs be arrived at by arbitral proceedings or otherwise and the applicants for this code constitute themselves a committee to assist in effecting such adjustments.

7. Unfair Methods of Competition

To accomplish the purpose contemplated by this act, the members signatory to this code agree that the following practices are hereby declared to be unfair methods of competition.

(a) To sell any product(s) or service(s) below the reasonable cost of such product(s) or service(s).

1. For this purpose, cost is defined as the cost of direct labor plus the cost of materials plus an adequate amount of overhead including an amount for the use of any plant facilities employed as determined by cost accounting methods recognized in the industry (and approved by the committee constituted for the enforcement of this code as provided in section 8 (a).

(b) To give or accept rebates, refunds, allowances, unearned discounts or special services directly or indirectly in connection with any work performed or to receipt bills for insurance work until payment is made.

8. Administration

(a) To effectuate further the policies of the act, a shipbuilding and shiprepairing industry committee is hereby designated to cooperate with the administrator as a planning and fair practice agency for the shipbuilding and shiprepairing industry. This committee shall consist of five representatives of the shipbuilders and shiprepairers elected by a fair method of selection, to be approved by the administrator and three members without vote appointed by the President of the United States. Such agency may from time to time present to the administrator recommendations based on conditions in their industry as they may develop from time to time which will tend to effectuate the operation of the provisions of this code and the policy of the national industrial recovery act.

(b) Such agency is also set up to cooperate with the administrator in making investigations as to the functioning and observance of any provisions of this code, at its own instance or on complaint by any person affected, and to report the same to the administrator.

(c) This code and all the provisions are expressly made subject to the right of the President, in accordance with the provision of clause 10 (b) of the national industrial recovery act, from time to time to cancel or modify any order, approval, license, rule or regulation, issued under title I of said act, and specifically to the right of the President to cancel or modify his approval of this code or any conditions imposed by him upon his approval thereof.

(d) Such of the provisions of this code as are not required to be included therein by the national industrial recovery act may, with the approval of the President, be modified or eliminated as changes in the circumstances or experience may indicate. It is contemplated that from time to time supplementary provisions to this code or additional codes will be submitted for the approval of the President to prevent unfair competition in price and other unfair and destructive competitive practices and to effectuate the other purposes and policies of title I of the national industrial recovery act consistent with the provisions thereof.

(e) This code shall become effective not later than ten (10) days after its approval by the President.

The code as given above was signed by the following, representing the shipbuilding and shiprepairing industry: H. Gerrish Smith, president, National Council of American Shipbuilding; Joseph Haag, Jr., New York & New Jersey Dry Dock Association; and James H. Barnes, Washington, D. C.

Shipping Is Encouraged By Greater Activity

The following items selected from here and there indicate a decided improvement in shipping:

The chartering department of the General Steamship Corp. Ltd., San Francisco, records a materially increased list of charters for the month of July. The greatest activity was experienced in the intercoastal trade with the transpacific lumber market to Japan a close second.

Because of heavy demands for space the liner CALAMARAS of the United Fruit Co. has been entered in the company's Colombian cruise service for three special sailings from New York, the last on Sept. 16, according to W. M. Penick, passenger manager.

The Ward line's cruise liner MORRO CASTLE sailed from New York for Havana, Aug. 12, with 220 pasengers. Heavy bookings and inquiries guaranteed subsequent sailings with large passenger lists.

Tourist Passenger Record

Since May 6 a record number of 4138 tourist passengers have been carried or booked on Italian line vessels from New York and Boston. This number includes only passengers carried on special tourist sailings together with those booked for the Aug. 29 sailing of the ROMA. It does not include tourist passengers carried on other sailings.

New records in the volume of transatlantic passenger travel, both east and westbound, have been established during the first six months of this year by the Italian line operating between New York and Mediterranean ports. In this period a total of 22,545 eastbound transatlantic passengers have been carried, an average of 727 passengers per sailing to Europe.

Records for westbound sailings on the Italian line show that during the same period of six months, 4150 transatlantic passengers were carried. This is also said to be a record for the first six months of 1933. The Italian line also claims a record number of passengers on two individual sailings from New York during the year up to Aug. 11. Sailing from New York, June 24, the REX carried 1599 passengers for transatlantic ports and the CONTE DI SAVOIA, sailing on July 8, had an even greater number, carry-

ing 1782 passengers.

The Hamburg American line announced that the large demand for space on the cruise of its motorship MILWAUKEE to Nova Scotia over Labor Day week end will make is impossible to accommodate all those wishing to go. The company has, therefore, arranged to send its flagship NEW YORK on a four day cruise at that time to the same port.

According to H. P Borer, general passenger manager of the Cunard line, the summer cruises of the MAURETANIA and FRANCONIA have proved so strikingly successful and so many demands have been made for accommodations that the line has been impelled to schedule additional sailings of the FRANCONIA on Sept. 9 and Sept. 23. The July and August cruises were almost completely sold out and hundreds of applicants for cabin space were turned away. Bookings on every cruise have exceeded expectations. The MAURATANIA carried 770 passengers on July 8, with 777 July 22 and 781 on Aug. 5, and on the Aug. 22 and Sept. 9 sailings there will be upward of 770 vacationists on each. The FRANCONIA had similarly full bookings.

The Swedish American liner KUNGSHOLM, sailing from New York, Aug. 12, for Bermuda and Halifax carried 450 first class passengers, the limit of her capacity. She was booked full nine days before sailing.

On Aug. 3 the Hudson River Steamboat Company serving New York, Albany, Troy and intermediate points, announced that passenger and freight traffic on ships of the company is 50 per cent greater now than last year.

Traffic through the Panama canal during July was the largest since January, averaging 12.94 transits daily, as compared with 10.52 in the same month of last year. There was also an increase of 17.2 per cent in tolls, which aggregated $1,732,243 during July, as compared with the same month during 1932.

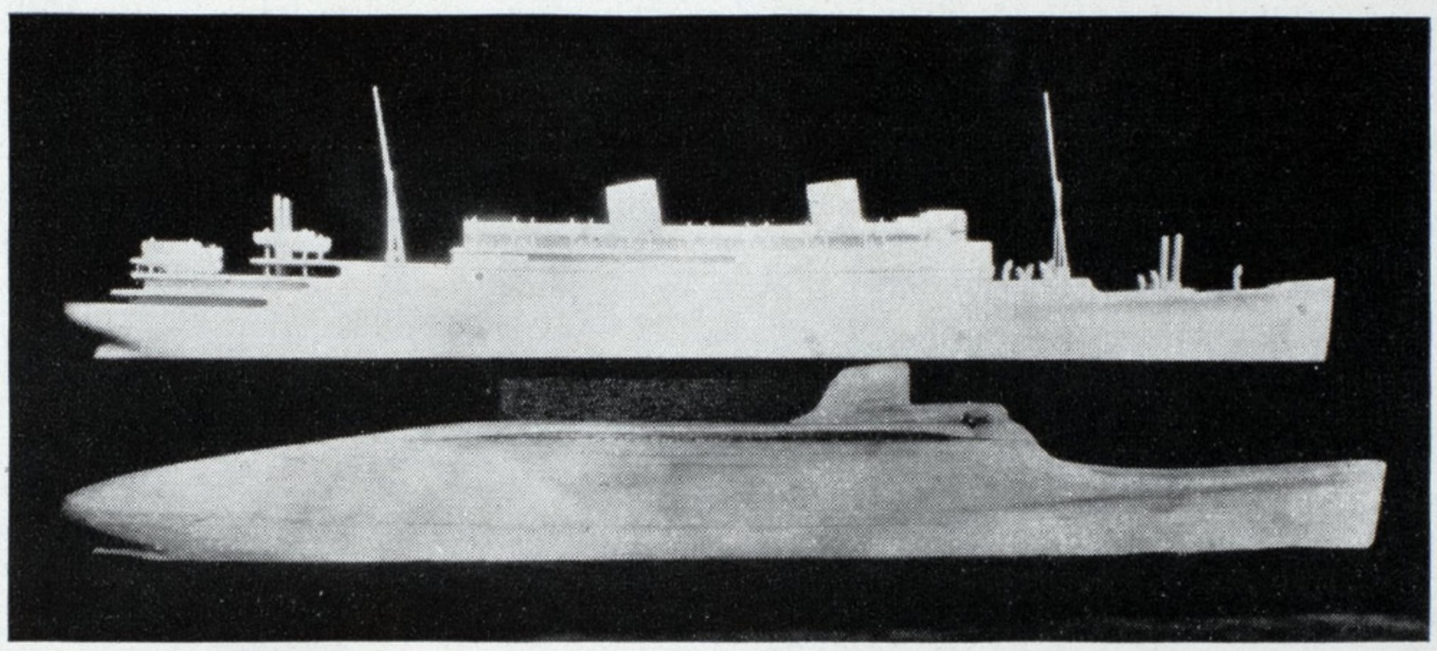
Reports indicate that traffic from Churchill, Canada's new port on Hudson bay will be double what it was last year. During August and September more than 5,000,000 bushels of wheat will be loaded by 20 ships, compared with 2,736,000 bushels in 10 vessels last season. The port is only two years old.

The Eastern Steamship Lines, Boston, reports a June net income of $183,022 after taxes and charges, as compared with a net income of $98,596 in June, 1932.

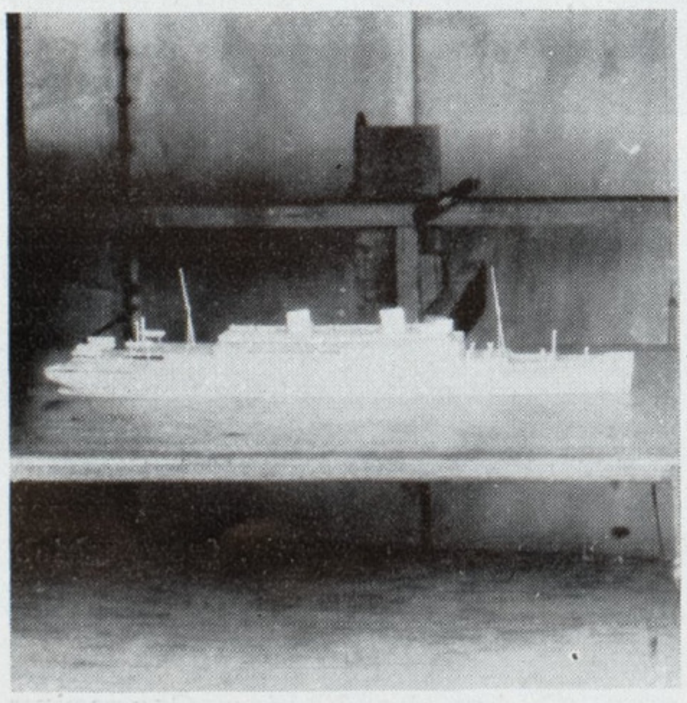
Air Resistance Tests Made on Ship Models

DURING the first half of this year a series of wind tunnel experiments, to determine effect of wind resistance on the power and speed of ships, were carried on at Case School of Applied Science, Cleveland, under the direction of Dr. P. E. Hemke, associate professor of aeronautics. These tests formed the basis of the thesis presented by two senior students, T. L. Vose and E. W. Oberzil for the bachelor of science degree, and were made on a 33-inch model of the S. S. MANHATTAN, and an ultra streamlined model of the same ship. The flat, or ground plate method of testing was used throughout the experiments; which means that only the part of the respective models from the load water line up was exposed to the air stream.

The streamlined model was fashioned not as a practical design from which a ship would be built, but rather as an extreme ideal to work toward when considering the construction of new high speed ships.



Models used in wind tunnel tests. Upper represents S. S. Manhattan. Lower has same hull with upper portion radically streamlined



Test model of the S. S. Manhattan in wind tunnel

The experiments so far do not give absolute results but indicate definitely that such results are attainable within a reasonable degree of accuracy. Curves drawn from observations now completed do show comparatively large savings in power required to drive the ship at the higher relative wind velocities. The same curves show that at low relative wind velocity the saving in power by streamlining the superstructure is insignificant.

A comparison of the readings of the head resistance of the two models shows that the streamlined model has approximately 84 per cent less wind resistance than the model of the MANHATTAN at a ship's speed of 20 knots and a head wind of 26.7 statute miles per hour. The combined speed of the ship and the velocity of the wind in this case gives a relative wind velocity of 50 statute miles per hour with reference to the ship.

It is expected that further tests will be made. In these tests the experience gained in the preliminary experiments can be applied in a comprehensive manner to models of somewhat larger scale and of closer conformity in detail, first to a definite vessel now in operation and second to a model of this same vessel streamlined within practical limitations; all this with the view of determining the possible saving in power for higher speed ships.

The results so far obtained and set down in the thesis referred to have been brought to the attention of a number of practical naval architects of high standing. Although the clearly recognized major problem in ship design has to do with resistance through water, considerable interest was expressed by these naval architects in the wind resistance experiments and particularly as it affected high speed ships where it is acknowledged to be a problem of some importance.

Largest All-welded Steel Freighter

Is Nearing Completion at Rochester

A TRULY unique vessel is now nearing completion at Rochester, N. Y. This vessel is an all-welded, diesel electric propelled, self-unloading, craft to be used for Barge canal, Great Lakes and possibly coastwise service. The Dolomite Products Co., Rochester, N. Y., dealer in cement, sand, stone, gypsum and other building materials, is the designer and builder, as well as the owner of the new vessel which has been given the name of DOLOMITE No. 1. Classified in the American Bureau of Shipping, this vessel is also being built to the special survey of the bureau.

Under the personal supervision of John H. Odenbach, president of the Dolomite Products Co., and his chief engineer, John Cattanach, the new vessel is being constructed in an unused section of the old Erie canal near Rochester. Upon completion of the vessel which is anticipated for Oct. 1, the vessel will be floated by removing the earth dam by blasting and admitting water.

Several Distinctive Features

The new vessel is distinctive in several respects. She is the largest all-welded steel freighter built in the United States. Her principal dimensions are length overall, 213 feet, 10 inches; beam molded, 32 feet; and depth molded, 13 feet, 4 inches. Instead of the usual frame and shell plate construction the hull is built of steel channels bent cold to the shape of the various transverse sections and welded together at toe and heel. The draft of the vessel can be quickly controlled to suit operating conditions. When entering the Barge canal, for instance, the draft can be increased to permit passing safely underneath the bridges. As cargo is taken on at canal ports, the water ballast is blown overboard by means of compressed air. This operation is reversed as material is unloaded.

Due to the arrangement of cargo bins, the vessel can transport different commodities and liquids at the same time. She is to be used for the transportation of sand, gravel, cement, gypsum, coal, coke, oil, gasoline and other materials. Anything which can be carried on belt conveyors or pumped through pipes can be loaded and discharged. When loaded to a 10-foot draft, the capacity of the vessel in various commodities is as follows: stone, sand, gypsum, or like materials weighing 100 pounds per cubic foot, 1200 tons; cement in bulk, 6000 barrels; gasoline, fuel oil, or other liquids, 3000 gallons; combined cargo of coke and oil, 500 tons of each; a combined cargo of coal and oil, 800 tons of coal and 400 tons of oil. Other commodities such as iron ore, sulphur, soda ash and grains can also be carried.

Depending on the cargo the vessel may be loaded in from one to six hours and unloaded in from three to six hours.

Principal Characteristics

Dolomite No. 1

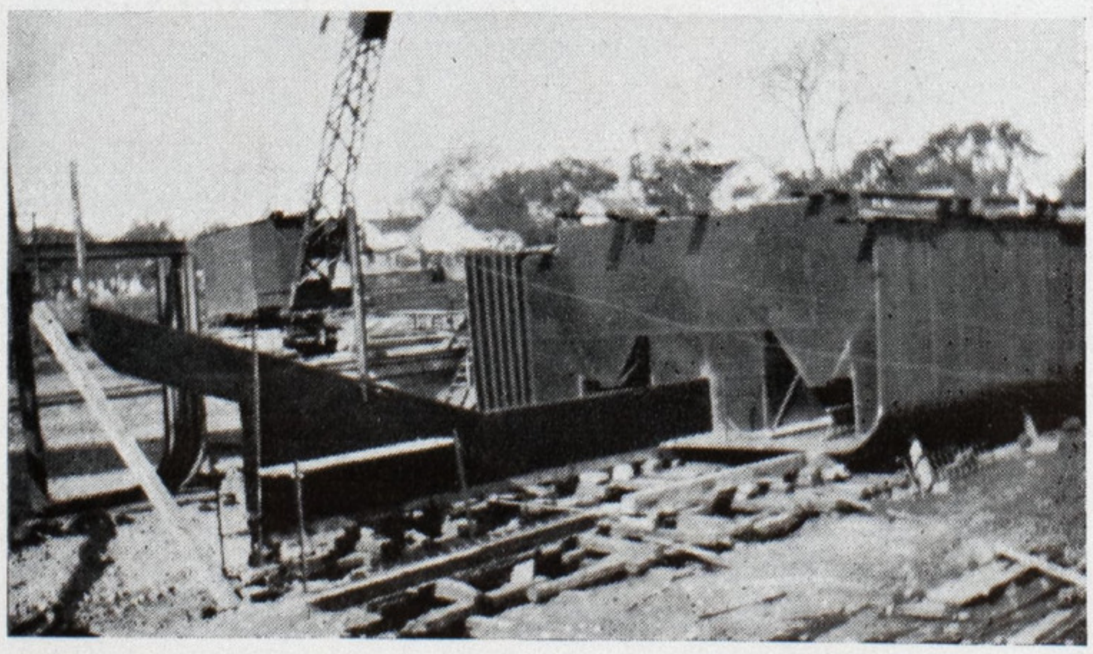
Builder	Dolomite Products Co.
Owner	Dolomite Products Co.
Classification	American Bureau of Shipping
Launched	Not yet launched; abt. Oct. 1, 1933
Completed	(Anticipated) Oct. 1, 1933
Length overall, feet, inches	213 10
Length between pp., feet, inches	205 4
Beam molded, feet, inches	32 0
Depth molded, feet, inches	13 4
Draft, light, feet, inches	3 6
Draft, (to clear bridges), feet, inches	6 6
Draft, fully loaded, feet, inches	10 0
Gross tonnage	1750
Net tonnage	550
Cargo capacity, on 10 feet, tons	1200
Bunker capacity, gallons	6000
Propelling machinery, twin screw, diesel electric, two generating sets, two motors. Total brake horsepower at 360 r.p.m.	700
Speed, miles per hour	12

How Cargo is Handled

Cargo if dry is handled by means of belt conveyors and if liquid by a powerful pump. There are two hatches for each of the 14 hoppers. These hatches are 2 feet, 6 inches by 2 feet, 6 inches in size. Bulk material is spouted into the hoppers through these hatches. Each hopper has three gate openings in the bottom, individually controlled from the pilot house. Two belt conveyors, one on the port side and the other on the starboard side, run lengthwise from stem to bow underneath the gates. At the bow the material is spilled on to transverse conveyors which carry it to an enclosed conveyor running aft and coming up through the well deck. From the latter the material is transferred to a conveyor boom, 85 feet in length, from which it is discharged on stock piles, into freight cars or into bins alongside the dock. The belt conveyors were supplied by the Robins Conveying Belt Co.

The wing and centerline tanks as

In the construction of the bow as shown at the right bars 4 x ¾ inches, in shape of crescents were welded to the channels forming the bottom of the hull. Only the bilge is plated



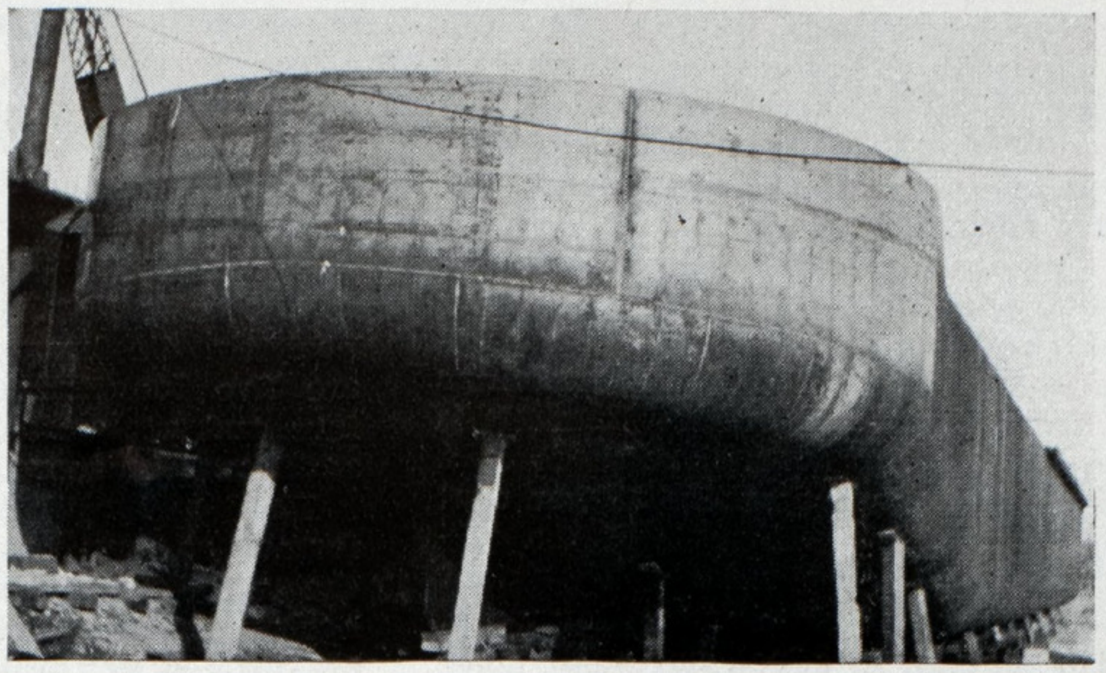
Bulkheads are continuously welded to the channels forming the sides and bottom. The keel is notched to fit over the toes of the channels

shown on the midship section, Fig. 1 page 18 are used for carrying liquid cargo, if the bulk cargo does not give the allowable maximum displacement corresponding to 10 feet draft. If no liquid cargo is carried, these tanks can be used for keeping the ship on an even keel while unloading by pumping water ballast. As mentioned before, ballast must also be used for giving the vessel clearance under canal bridges when the cargo carried is too light to bring her down to the proper draft. The cargo pump used for ballast or liquid cargo in the wing and centerline tanks is of the rotary type and was supplied by the Northern Pump Co. It has a capacity of 1450 gallons per minute at 200 revolutions per minute, at a normal head of 70 feet. The pump is driven by a 60 horsepower Westinghouse Electric & Mfg. Co. motor.

Main Propelling Machinery

The propelling machinery in the DOLOMITE No. 1 consists of two diesel engine generating sets and two direct current electric propelling motors each direct connected to a propeller. The engines are four cycle, six cylinder, air injection type diesels built by Busch Sulzer Bros. Diesel Engine Co. St. Louis. The diameter of the cylinders is 14¼ inches and the length of the stroke, 14½ inches. Each engine develops 440 brake horsepower at 360 revolutions per minute. Each engine is direct connected to a 316-kilowatt, 300-volt, direct current, generator built by the Diehl Mfg. Co., Elizabeth, N. J. Main engines also each drive one 25-kilowatt, 125 volts, auxiliary generator. According to information received from builders it is possible to crank the main engines by using the generators as motors. Excitation is supplied from a 1600 ampere hours storage battery which is kept charged from any one of the three generators depending upon requirements.

The two main propelling motors, also supplied by the Diehl Mfg. Co., are direct current, 500 volts, and each develop 350 horsepower at 360 revolutions per minute. Each motor is direct connected to a four-bladed cast steel propeller, 5 feet, 4 inches in diameter and 38 inches in pitch. The propellers were supplied by E. H. Reading & Co.



Stern showing plating which was formed to shape cold and arc welded in place. The skeg is built up of beams, channels and diagonal angles and is covered with ¼-inch plate

In addition to the two auxiliary generators driven by the main engines there is one independent auxiliary generator of 32 kilowatts and 125 volts, direct current, driven by a 4 cylinder Winton diesel engine. The generator was supplied by Westinghouse Electric & Mfg. Co.

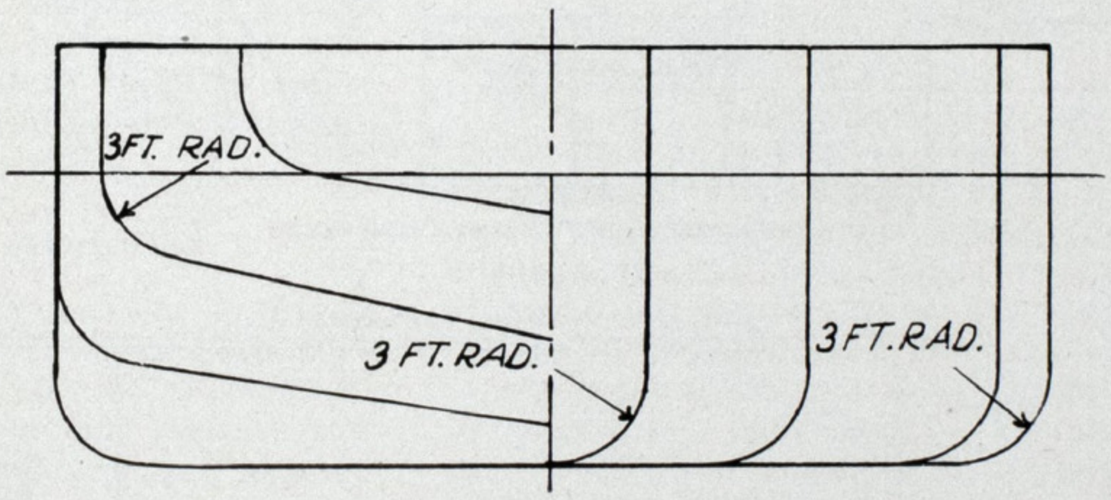
Auxiliary Equipment, Pumps

The steering gear is electric-hydraulic furnished by the Hyde Windlass Co., Bath, Me., and is driven by one 6 horsepower electric motor. The telemotor is operated by ¼ horsepower electric motor.

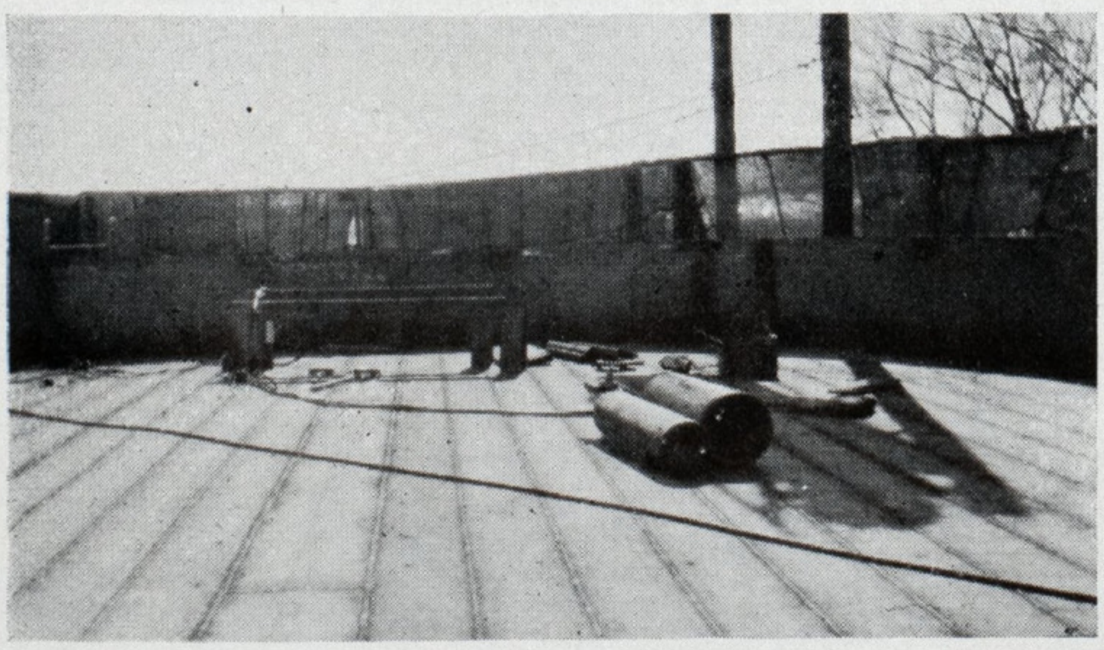
In addition to the cargo pump already referred to, the pumping system consists of a centrifugal circulating water pump for the diesel engines, with a capacity of 350 gallons per minute at a normal head of 50 feet and at 1150 revolutions per minute. This pump was supplied by the Worthington Pump & Machinery Corp. There is one Kenny rotary lubricating oil pump of 75 gallons capacity per minute at 50-foot head and 200 revolutions per minute.

The Northern Pump Co., Minneapolis, Minn., in addition to furnishing the large cargo pump, also supplied one rotary pump of 100 gallons per minute capacity at 45 foot head and 850 revolutions per minute, driven by a 3 horsepower General Electric, direct current, marine motor; one rotary pump of 25 gallons per minute capacity at 25 foot head and 1150 revolutions per minute, driven by a 1½ horsepower, General Electric, direct current, marine motor; also by the same company, two pumps exactly similar to the foregoing one for the stern bearings and one for lubricating oil auxiliary. There is also a 3-inch Elliott twin filter for the stern bearings.

The Schutte & Koerting Co. has supplied a No. 7 oil cooler. As this is written some of the equipment such as centrifuges, windlass, etc., had not yet been decided upon.



Approximate form of sections of the all welded self-unloader Dolomite No. 1



View of the after deck, looking aft. This deck is constructed of 12-inch channels laid longitudinally and welded together

Gear reducers in connection with the belt conveying system were supplied by the Falk Corp., Milwaukee. For effectiveness in maneuvering, in addition to the twin screw electric drive controlled from the pilot house, the vessel will have double rudders.

Hull Construction Features

One of the interesting features of hull construction is the use of channel sections placed transversely, flange to flange, and arc welded. This eliminates practically all loft, template and plating work. This innovation in the use of standard

channels and arc welding for ship construction has attracted interest among naval architects and shipbuilders who have had the opportunity to inspect the vessel while under construction.

Because of the unique construction, entirely different from ordinary shipbuilding practices, no exact figures are obtainable on the savings effected by the use of welding. It is estimated, however, that there is a saving of approximately 25 per cent in deadweight. There is also a saving due to the minimum amount of plating, template and fitting work. The ship is, in effect, one solid piece of steel and possesses unusual strength.

Channels Shaped Cold

The sides and bottom of the hull are 12-inch channels weighing 20.7 pounds to the foot. The channels are shaped cold in one piece, forming the two sides and the bottom. Eacn channel is welded continuously at both toe and heel to the channel next to it. The contour of the rolled channels may be seen in the midship section, Fig. 1, below. Figs. 2 and 3 also show how the channels are used.

The keel through the midship section is formed of ¼-inch plates stiffened with angles. The vertical plates are notched for the channel toes and welded continuously along the inside of the channel. One of the accompanying illustrations shows the construction.

Keelsons of ¼-inch plate located as shown in Fig. 1 are tied to the keel by diaphragm plates. There are five longitudinal keelsons, run fore and aft amidship, with several additional keelsons forward and aft.

The water ballast tanks are formed as may be seen in Fig. 1 by the side of the hull, the outside keelson and the bin plate. The ends are formed by the bulkheads. Additional ballast tanks which may also be used for liquid cargo are formed by the keel, the two inside keelsons, the horizontal plate and the bulkheads.

Bulkheads are spaced every 18 channels making 28 ballast tanks and 14 cargo bins. The bulkheads are made of ¼-inch plate welded continuously to the channels along toe and heel as shown in Fig. 3.

The belt conveyors, referred to above, are located below the hoppers shown in Fig. 1, and take the cargo to cross conveyors at the forward end of the ship. Then by a conveyor in the middle line of the ship to the main deck and then by boom conveyor to the dock or car. This system will handle 300 to 400 tons per hour. Liquid cargoes are pumped directly from ship tanks to land storage tanks.

The bow is formed of 12-inch channels cut to give the necessary curves. The bilge is constructed of ¾-inch thick bars, 4 inches wide, in the shape of crescents. The sides of the bow are formed by channels welded to the top of the ribs. This leaves only the bilge to be plated. The stem is a T section made up of ¾-inch plates.

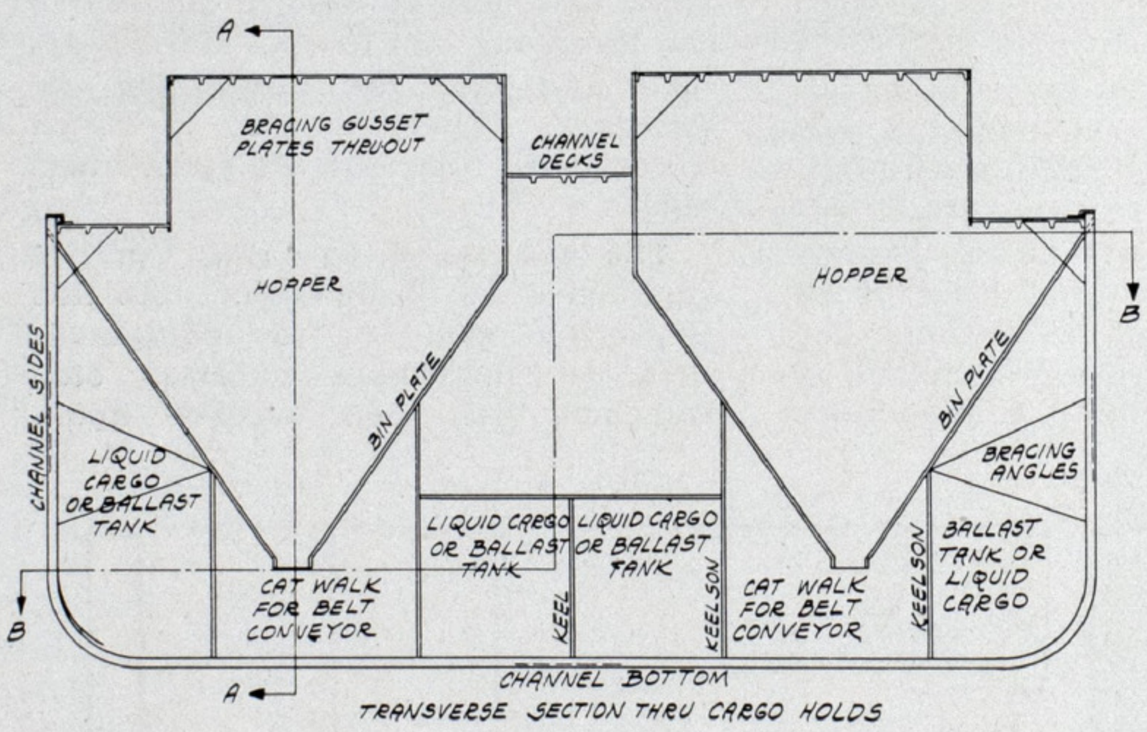
Deck Also of Channels

For the after part of the vessel channels placed transversely were used as far back as possible. Where the fantail portion starts, frame and plate construction is used as in the bow. The plating is shaped cold. The skeg is built up of beams, channels and diagonal angles.

Like the hull, the deck is composed of 12-inch channels but these are laid longitudinally. All deck openings, pilot house, and cabin are made watertight to prevent entrance of water when operating in rough weather. Rubber gasketed steel hatch covers are used on the hoppers.

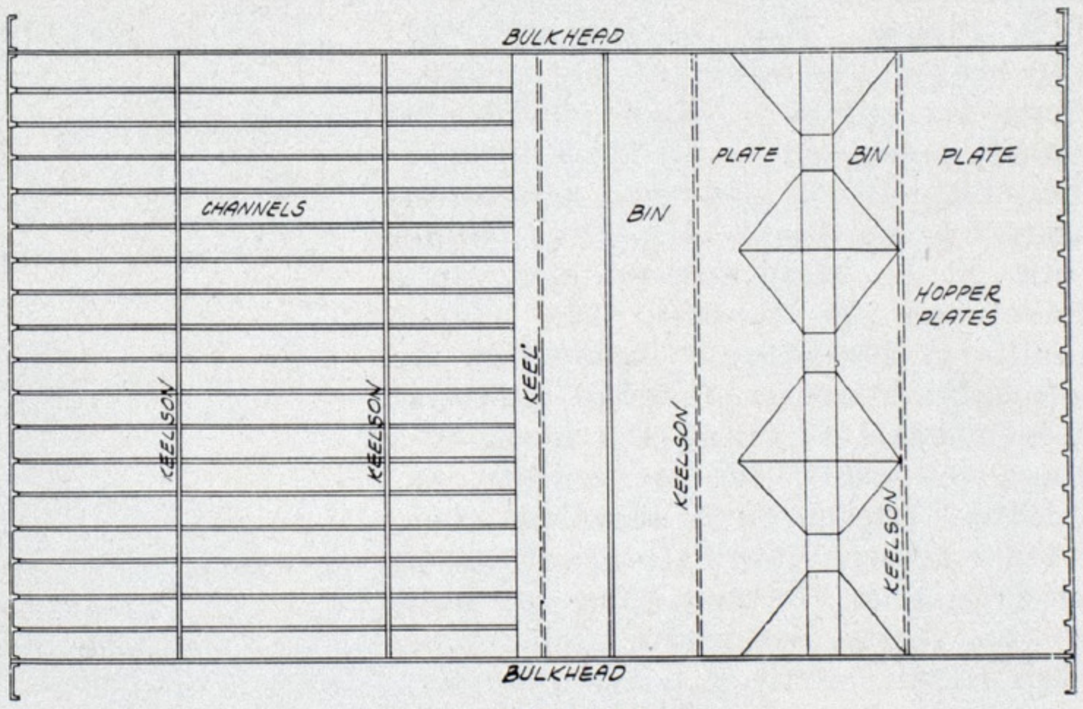
Longitudinal strength of the hull

(*Continued on Page* 40)



TRANSVERSE SECTION THRU CARGO HOLDS

FIG. 1



SECTION B-B

FIG 2

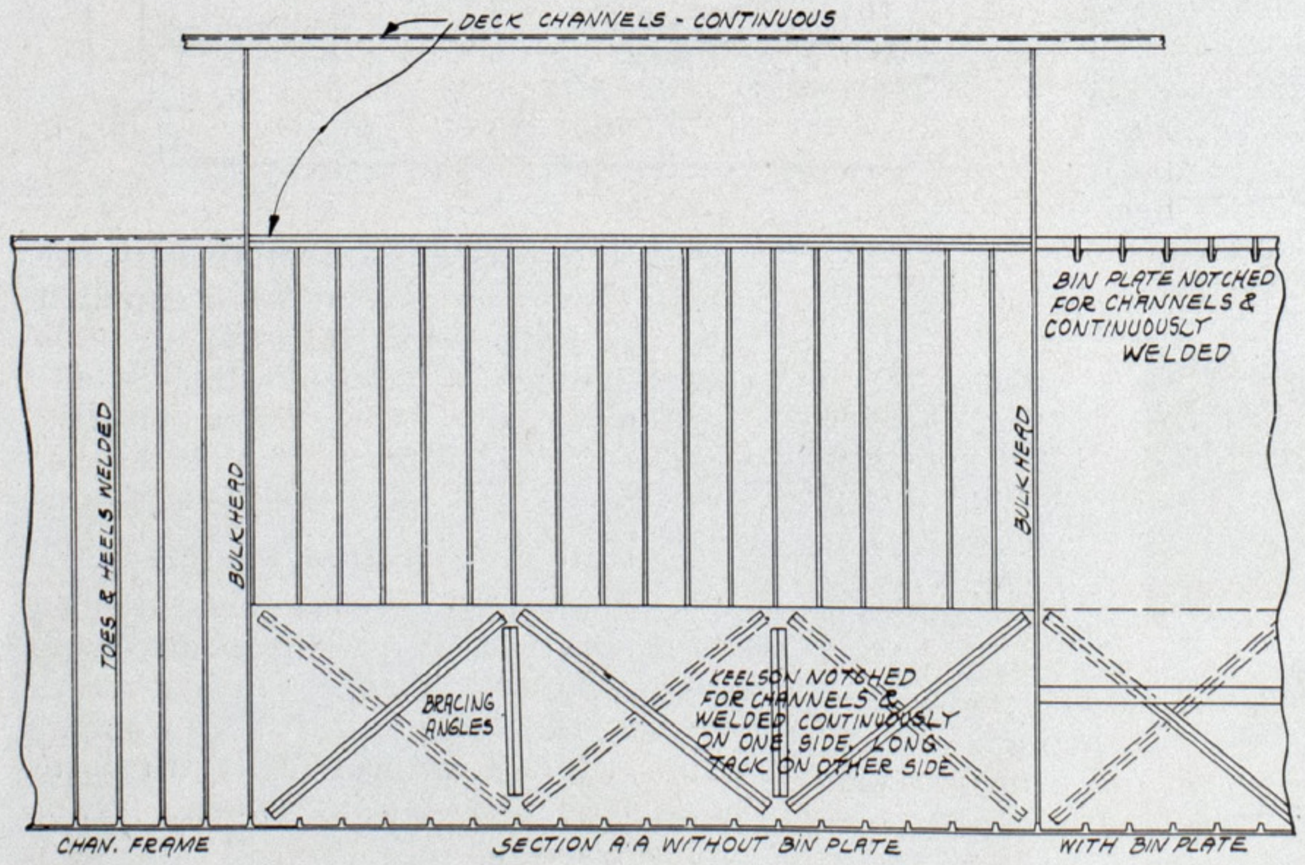


FIG 3

Fig. 1—Transverse section through cargo holds of Dolomite No. 1, largest freighter to be built by welding in the United States

◆

Fig. 2—Section through BB as indicated on Fig. 1, showing location of bulkheads and hopper plates

◆

Fig. 3—Section through AA as indicated on Fig. 1, showing interior of side of hull and bracings for keelson

Electric Motors, Generators on Ships

How to Keep them in Good Condition

By Frank V. Smith

THERE is probably no greater farce on shipboard from an engineer's point of view than that of making periodic inspections; say, making the rounds of certain apparatus on Mondays, Wednesdays, and Fridays, and others on Tuesdays, Thursdays and Saturdays, and then reporting to the captain in this wise, "The anchor windlass has been inspected and is secure, sir."

When machinery is furnished for shipboard use, it is generally accompanied by a long list of instructions telling just what to inspect, weekly, monthly, semi-annually, and annually. It is something like the instruction book one gets with his automobile, saying that this gadget should be oiled every 500 miles, another every 1000 miles and still another every 2500, and then finding yourself on a long trip with all of the mileages passed without a thought. Set times and set mileages look good on paper and show much profundity of thought, but an engineer can get into a lot of trouble if he follows them blindly and rests during the in-between periods.

What an engineer is really interested in is if the equipment under his care is gradually building up a condition that will eventually spell for trouble;—in this regard nothing will take the place of common sense, good eyesight, good hearing, and a good sense of smell. If the engineer has all these, and most engineers have, the thing he wants to know is, if he makes an inspection and finds things getting a little off color, just how he can bring an equipment back to its original condition so that it will be as good as new. That is, he wants to scent trouble before it happens, and never allow an equipment to run down at the heel to the point that it is a shore job to fix it.

Using Too Much Grease

Most troubles on electrical equipment are caused by conditions that are cumulative. A few years ago, ball bearing motors began to replace the sleeve bearing type with oil rings. The manufacturers in order to simplify things put alemite fittings on the bearings so that they could be filled with a pressure gun. The result was that in many cases, overzealous oilers who wanted to make their job a real job, used the gun once a watch and in a few weeks time had piled up enough grease on the floor plates to last a dozen motors for a year.

Then there is the other extreme, that of a chief telling an oiler not to dare oil that motor (after 3-years running) as it was oiled when it left the factory. These conditions point out one thing and that is, some engineers need more knowledge and that others should exercise more vigilance. Now the facts about ball bearings are: that the ball races want to be packed only about 1/3 to ½ full for if they are packed too tight, they will run hot; another thing is that good grease ought to last from six months to a year. When grease has been in this long, it is likely to contain some of the wearings, and the ball race should, therefore, be cleaned and properly packed with new grease, being sure that in the process of cleaning and packing no foreign substances get mixed with the grease—this means grit off the hands or pieces of waste.

Many ill results take place from too much grease; first, with a pressure gun it is possible to force grease out of the bearings along the shaft, and on to the commutator if it happens to be the commutator end bearing. A dirty, greasy commutator does not help the electrical end of the motor; and second, the grease may deposit on the windings and form the first sticky mess to catch dust and start building up accumulations on the insulation.

Care in Lubrication

From this point on, a lot of things can happen. The dielectric strength of the insulation may be affected, or the motor may run hot because the windings are blanketed and cannot get rid of their heat. These cumulative ills are generally what cause serious trouble in the end. It is perfectly obvious, however, that if the chief gave the oiler a good bawling out, the first time he saw grease on the floor plates or creeping along the shaft, all of the troubles to come could be averted.

Sleeve bearings too have caused their troubles, and more motors have been ruined by too much oil than with too little. Other troubles have resulted from not using care when drawing the oil and allowing gritty substance to get into it before applied.

If one takes the common sense view of a motor on shipboard, there is not a great deal to do in their upkeep if they are given a fair chance. Cleanliness, a smooth running commutator and freedom from long sustained overloads that might cause overheating, are about all they ask. The life of a motor depends upon its insulation. Overheating causes certain elements in the insulating varnish to evaporate and this in turn makes it porous, allowing the absorption of moisture during periods of idleness. This is the reason for saying many times that a motor in idleness deteriorates more rapidly than one in use. If one keeps a motor clean and the insulation intact, no one can tell its life. Records are on file where motors have run for thirty years and are still to all visual appearances, running as good today as they were when new.

Importance of Cleanliness

Cleanliness and good insulation being the main factors in the life of a motor or generator, let's see what tools the engineer has at his disposal to check these items. Cleanliness, he can detect with his eyes—insulation resistance, with a megger. Assuming that he wants to get right on the job, let's consider what might be considered good advice, rather than the presentation of a stereotyped list of instructions.

First, one might say it is a good idea, when on a trip, to keep one's eyes open to what is going on so as to prevent any troubles arising as denoted in the first part of the article; and second, when the ship arrives in port, to look things over to see that no oil, moisture nor dirt is collecting. This makes it doubly sure that the engineer not only knows what is going on but that he has a check on his observations, and if things are not as they should be, he can do something about it next trip. Once, he finds that the crew has fallen in line with the finer points of operation, and that trip after trip everything appears as bright and clean as it was the first day the equipment went into service, he can afford to let down slightly and make his inspections a little less often.

When a ship is new, a daily inspection might not be too often. After a crew has fallen into a routine, and the routine has been

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proven to be correct, an inspection every three months might be sufficient. It is a good thing to remember that more damage is generally done the first few months after a ship goes into commission, than the years that follow, unless the crew is constantly changing.

The next advice in regard to the upkeep of motors and generators is what to do in case the equipments have accumulated dirt and oil on the windings, or if the insulation resistance by test is shown to be too low.

How to Clean Windings

In cleaning the windings, the approved practice is to use carbon-tetrachloride, a volatile, quickly evaporating solvent. Gasoline or benzine should never, under any circumstances, be used because of their explosive fumes, which become exceedingly dangerous in confined spaces on shipboard.

The recommended practice is to apply the carbon-tetrachloride by means of compressed air under suitable pressure and to hold the atomizer close to the work so as to obtain the greatest benefit from the cleaning fluid. A small portable ventilating fan that will draw the fumes of the vaporized carbon-tetrachloride away from the workers should also be used. Compressed air should be used to blow any dust or foreign particles out of the windings.

In using carbon-tetrachloride, it is quite important to hold the spray close to the parts being cleaned as the more volatile contents of the fluid will be absorbed by the air, the heavier portions as sprayed on the windings not drying as quickly as might be expected.

If the windings are real dirty, it may be necessary to apply the carbon-tetrachloride spray two or three times. When this is found necessary, it is extremely important that the parts be wiped dry between each application by means of brushes, cleaning cloths, etc.

Sometimes, if the windings have been allowed to get into bad shape, it even becomes necessary to use a hand scraper to get rid of the heavier incrustations. When this becomes necessary, use a wooden stick—never a metal scraper unless you want to help out the manufacturers by buying more windings.

Varnishing a Particular Job

After the windings have been thoroughly cleaned, be sure that all of the cleaning fluid has been wiped off and that none is trapped in the insulation. Carbon-tetrachloride being a solvent has a bad effect upon the insulation varnish, and may cause corrosive products, if ionization should occur in the vapor. Never try to varnish over undried carbon-tetrachloride, for if you do, the insulation will be softened.

After thoroughly cleaning and drying the windings, they may require varnishing, and they may not; this depends upon the state of the varnish film. If the high lustre of the varnish film has been damaged or destroyed, so that there is a possibility of moisture absorption, then the insulation needs revarnishing.

Revarnishing is not just anybody's job, and there are certain precautions that must be taken if one expects to get good results. One of the most important is to buy only the finest grade of varnish made expressly for the purpose. Find out from the manufacturer of the equipment what he recommends and do not be kidded into buying something just as good or better on hearsay. Most of the large electrical manufacturing concerns make their own varnishes and spend large sums on research yearly to improve their product. Varnish for insulations has to stand high temperatures and to be satisfactory must not evaporate out any of the binding elements over long years of service; should this evaporation take place, the varnish would become brittle, show cracks, and allow the insulation to absorb moisture.

Varnishes are generally applied in three coats, put on thinly, and allowed to thoroughly dry between coats. One of the first dont's is, never put a coat of varnish on another that is wet; if you do, the under coat will remain gummy. Under certain high humidity or low temperature conditions, it may help to use a heater and electric fan combination, something similar to a hair dryer, to speed up the drying process.

Another important thing is to be sure that the windings are thoroughly dried out before the varnish is applied. Take insulation resistance measurements before the job of varnishing is tackled.

Some engineers prefer to spray air-drying varnishes on the windings. When using this method, it must be remembered that practically all quick-drying varnishes have a low flash point and, therefore, present a fire hazard unless extreme care is used. Ignition is readily caused by sparks, flame or excessive heating of any kind. This may result from short circuits or switching, or even from electrostatic discharges beween the parts of the apparatus involved. To remove this latter risk, the metal parts of the spraying apparatus and machine being sprayed should be grounded to a common point.

Should Run Three Years

In conclusion, it may be said that this cleaning and varnishing process looks like a big job. It is, and that is why it pays to nip anything in the bud that is going to make such a procedure often necessary. With any kind of care, a motor or generator should run for three years without requiring a thorough cleaning and varnishing. When a motor gets plugged up with grease and dirt sooner than that, it shows that either the operating personnel have been letting things go, or that the improper kind of motor was fitted into the ship (generally to save money).

Engine rooms that are likely to contain heavy oil fumes, such as diesel ships, are no place for open, semi-enclosed, or enclosed ventilated motors, unless the proper kind of exhaust fans are provided in the engine room for keeping the fumes from entering the motor. Totally enclosed fan cooled motors in which the outside air is never circulated through the motor, are the only proper type, and they pay for themselves many times over if one takes into consideration operating expense and upkeep.

There is not very much more to say about what should be done to a motor on overhaul, except that when varnishing, one should not forget the commutator clamping ring insulation, and to see that all rusted iron parts are thoroughly cleaned and varnished. A cleaning and varnishing job once in three years is not so bad, and an engineer who can stave off the periods to that length of time will pass the test as a good operating engineer.

Ship Draftsmen Needed

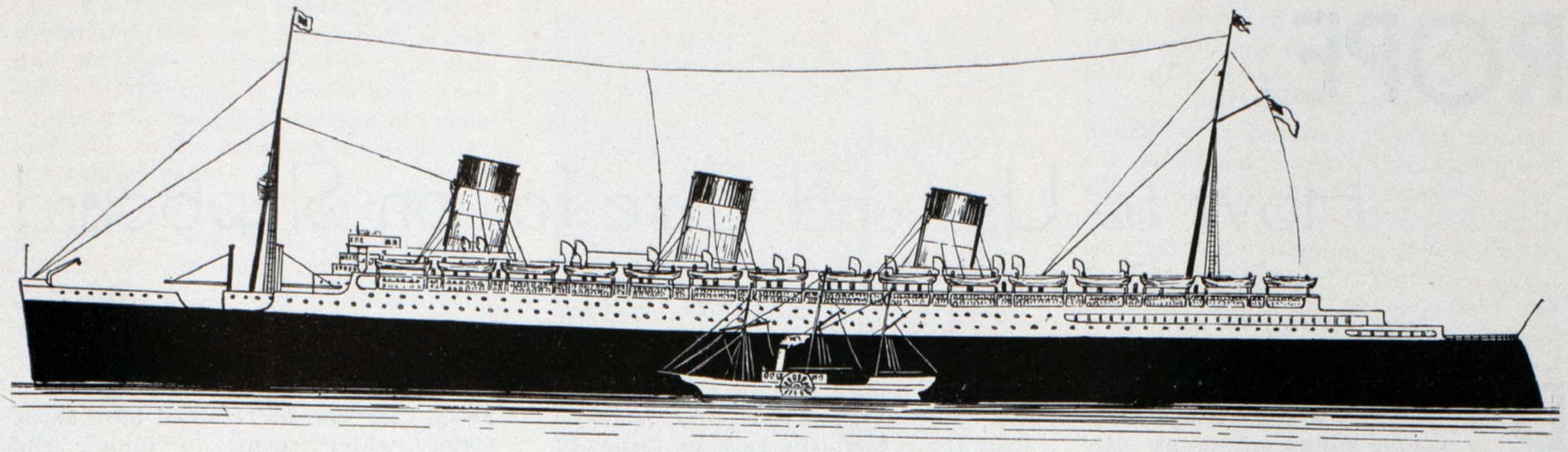
The United States civil service commission has announced that applications for positions as engineering draftsmen of various grades for work on ships must be on file with the commission at Washington, not later than Sept. 7, 1933.

Examinations are to fill vacancies in the departmental service, Washington, and in the field. Optional branches are ship hull, ship piping, ship ventilation, marine engines and boilers and ship electrical.

The entrance salaries for these positions range from $1440 to $2600 a year, less deduction not to exceed 15 per cent as an economy measure and a retirement deduction of 3½ per cent.

Competitors will not be required to report for examination at any place, but will be rated on their education and experience and on specimens of drawing and lettering. Applicants must have certain specified education and experience.

In the same manner competitive examinations will also be held by the civil service commission for positions as marine engineer, associate marine engineer and assistant marine engineer. For these positions entrance salaries range from $2600 to $4600 a year, less the above mentioned economy and retirement deductions.



Royal William, ocean steamship of a century ago and the projected Cunarder, No. 534, drawn to scale

ROYAL WILLIAM,

One Hundredth Anniversary is Celebrated

By "Lanyard"

THIS year of 1933 marks the centenary of the first crossing of the Atlantic by a vessel using steam all the way. This historic voyage was performed by the wooden paddle steamer ROYAL WILLIAM. Built at Quebec, she was launched April 27, 1831 and towed to Montreal to be fitted with engines developing 200 horse power. Her cost when ready for sea was £16,000.

The enterprise of her building was carried out by a group of Quebec and Halifax merchants, assisted by a grant of £3,000 from the government, and it is interesting to note the names of three Cunard brothers among her shareholders. After three moderately successful voyages in 1831, to Halifax and intermediate ports, she laid up for the winter.

In the spring of 1833, a new company was formed which purchased the vessel and for a time, used her for towing and local excursions. Then on June 4 she sailed on a trip to Boston where she was enthusiastically received as being the first steamship flying the Union Jack to enter a United State's port. On returning to Quebec, her owners decided to send her to England for sale. It was on this voyage that she made history; demonstrating to the world, the feasibility of navigating the oceans by means of steam propelled vessels.

Early in August she left Quebec for Pictou in the Northumberland straits, where she remained a few days coaling, storing, repairing engines and awaiting passengers. Her dimensions were: length over all, 176 feet; depth of hold, 18 feet; breadth over paddle boxes, 44 feet.

On Aug. 17, 1833 she steamed out of Pictou harbor to pit her puny engines against the mighty Atlantic rollers. Her clearance papers from the Pictou customs read:—ROYAL WILLIAM—363 tons. Master—John Mc.Dougall. Wither bound—London. Containing goods exported—254 chaldrons of coal (648 tons); a box of stuffed birds; ships spars (produce of the province); one box; one trunk; household furniture; a harp; seven passengers, all British.

Within a few days she encountered a tremendous storm off the Banks of Newfoundland, during which the starboard engine was disabled and through straining heavily, she started leaking. The chief engineer reported to the captain that the ship was sinking, but Mc.Dougall ordered the pumps started and held on his course. They steamed for a week on one engine, then effected repairs, but several stops had to be made. After 25 days of trials and tribulations they reached Gravesend.

Ten days later, she was sold for £10,000 and chartered to the Portuguese government as a troopship. Captain Mc.Dougall retained command and took her out to Lisbon.

In 1834 she was bought by the Spaniards; sent to Gravesend to be converted into a "warsteamer", and renamed the YSABEL SEGUNDA.

Later she returned to the Spanish coast and on May 5, 1836, in the Bay of San Sebastian, she earned the distinction of being the first steamer of war to fire a hostile shot in the history of nations. In 1840 she was sent to Bordeaux for repairs, but her timbers were found to be hopelessly rotten and she was converted into a hulk. Her engines were transferred to a new ship of the same name, which ultimately sank off the Algerian coast during a violent storm in 1860. And so, with her hull rotting in Bordeaux harbor, and her engines lying at the bottom of the Mediterranean. the ROYAL WILLIAM ended her distinguished career.

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A tablet erected in 1894 in the library of the house of commons, Ottawa, Canada, reads as follows:

"In honor of the men by whose enterprise, courage and skill, the Royal William, the first vessel to cross the Atlantic by steam power, was wholly constructed in Canada and navigated to England in 1833, the pioneer of those mighty fleets of ocean steamers by which passengers and merchandise of all nations are now conveyed on every sea throughout the world."

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An article on the transatlantic voyage of the S. S. SAVANNAH, sailing from Savannah, Ga., May 22, 1819, will be found in MARINE REVIEW for June.

ROPE,

How to Use and Care for on Shipboard

By J. G. Bisset

DIFFERENT ships, different long splices" is the old sailor's way of saying "different ships, different fashions," and it seems to me to be a very apt expression when considering the subject of rope and its uses on board ship.

All steamship companies have their own ideas on the matter, for in regular trades, they must conform to the customs of the ports they make use of, and to the mooring and stevedoring facilities to be found in them.

As an example of this, let us consider the Cunard line and its three big ships—AQUITANA, MAURETANIA and BERENGARIA. In Southampton, England, these ships are assisted into berth by five tugs using their own five-inch towing wires, and also by the ship's own nine-inch manila hauling lines which are run ashore by motor boats.

Once in berth, however, they are permanently moored by seven-inch, flexible steel mooring wires, which are kept with their eyes on the posts and flaked down along the quay in readiness. Each of these wires have 3½-inch manila messenger ropes attached, which are taken on board, led round the mooring bitts to capstans, and the wires hove on board till they are taut. Chain stoppers are then put on, and the capstans walked back sufficiently to allow two turns to be taken round the bitts, after which they are hove taut and cross lashings applied. Two more turns are then taken, hove taut and lashed, till finally they are well made fast with six turns. Four 7-inch wires are used each end during summer months and five during winter, when it frequently blows "big guns." The wires are each about 200 feet long and have a life of from four to five years.

In New York, the ships moor entirely with their own ropes, using three 6-inch wires and three 9-inch manilas each end. New York tugs are mostly of the "pusher" type, and not very powerful, 12 to 15 of them being employed to get a big ship into berth, under ordinary conditions of wind and tide.

As for cargo work, in Southampton the cargo is hove up on deck by 2½-inch wire falls on the center drums of the winches, then landed on the quay by shore cranes. In New York there are no cranes, and the cargo is taken from the hold to the quay by means of 3½-inch manila falls, worked independently on the drum ends of the winches. Wire falls are never used.

But these big ships are exceptional cases, so for the purpose of this article, let us take a typical modern passenger and cargo steamer of 14,000 tons gross, engaged on a regular trade and capable of carrying 6000 tons of cargo, in seven hatches, also 1500 passengers and 300 crew.

The largest ropes in use on board are the 8-inch manila hauling lines, or as they are sometimes called, mooring ropes.

They are of the best quality fiber, three stranded, right hand laid, and have a breaking strain of about 27 tons. They come in coils of 120 fathoms, and when received on board, are opened out by uncoiling from the outside layers and coiling them down in large right-handed coils which prevents them developing turns or kinks. They then have an eye-splice put in each end by the boatswain's storekeeper and they are ready for use.

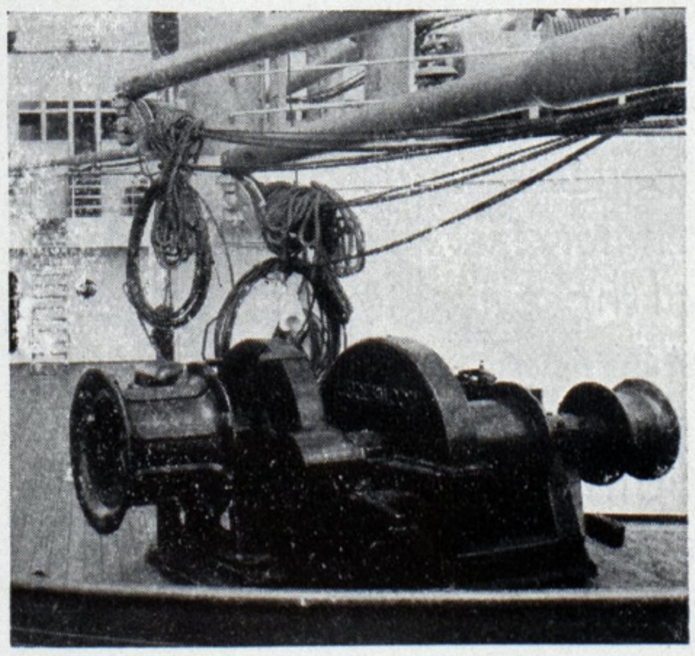
Present day ropes are well waterproofed, a quality which is attained by giving extra twist to the yarns, and treating them with oil during manufacture. This enables them to withstand a considerable amount of wet weather without swelling, or becoming stiff and unwieldy. Six of these mooring ropes are kept at each end of the ship, and they are renewed at the rate of one per voyage. With an average of twelve voyages per year the life of each rope works out at one year.

In addition to being used as moorings, they are used for towing purposes in several ports. If they carry away, they can be rejoined by a short splice, which seems to impair the strength of the rope very slightly. At sea they are stowed in a hatchway when possible, so that they are well ventilated and can dry out. Approaching port, they are got up on deck and coiled on wooden gratings. This allows free access of air, and prevents water, sand and mud from accumulating underneath them. During snow, they are protected by canvas covers.

In very cold weather, ropes become brittle and should be handled cautiously. If a rope develops turns or kinks, it may be due to its being always taken round the winch or capstan in one direction. Putting the turns on the opposite way will generally rectify this. Submitting hauling lines to extreme tension, racks the fibers and shortens their life. When putting a ship into berth, the ship's engines and the tugs should do as much of the work as possible, the hauling lines being regarded as steadying lines to guide her into position and hold her when she gets there.

This may not be possible at all times of course, especially in cases of emergency, but the writer has seen many valuable ropes ruined or carried away under normal circumstances, by officers who seemed to lose sight of the fact that the tug is paid to do the work. This may be put down to overeagerness on the part of the officer—not a bad fault really—or to bad handling on the part of the men at the winch. When men are being continually exhorted, in more or less lurid language, to "heave away on that blank, blank rope," they're apt to take too many turns round the winch barrel, with the result that they are unable to "surge" when the rope indicates plainly that it has reached breaking point.

In sailing ship days, when a squall struck the ship, the cordage could be heard cracking as it took the extra strain. When this cracking ceased, it was considered time to ease things up a bit or take in sail. This rule applies today, and winch-men should be warned to always have the rope well "in hand." Sharp nips and complicated leads to winches and capstans should be avoided. These produce a "rope yarn over a nail" effect and reduce the heaving power, besides creating wear and tear and reducing the life of the rope.



Manila and wire rope. A modern cargo winch installation. S. S. Manhattan

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The author, Commander J. G. Bisset, R. D., R. N. R., is master of the Cunard liner R. M. S. ASCANIA and was formerly staff captain of the R. M. S. AQUITANIA.

It is a company's rule that whenever a new hauling line is supplied, an old one must be landed. This prevents the cluttering up of peaks and storerooms with masses of rotting old rope, and adds to the company's revenue by the sale of same.

The day of the three-fold manila tackles for boat falls is practically over. They are costly, unwieldy, liable to develop turns and thoroughfoots, difficult to roundup even under favorable circumstances, and dangerous for lowering in the hands of inexperienced persons. Nevertheless many ships still have them, and in discussing the question of rope, they must be taken into consideration. Our ship has 26 lifeboats and two motorboats, stowed in double tiers under 14 sets of Welin davits. Total carrying capacity is 1800 persons.

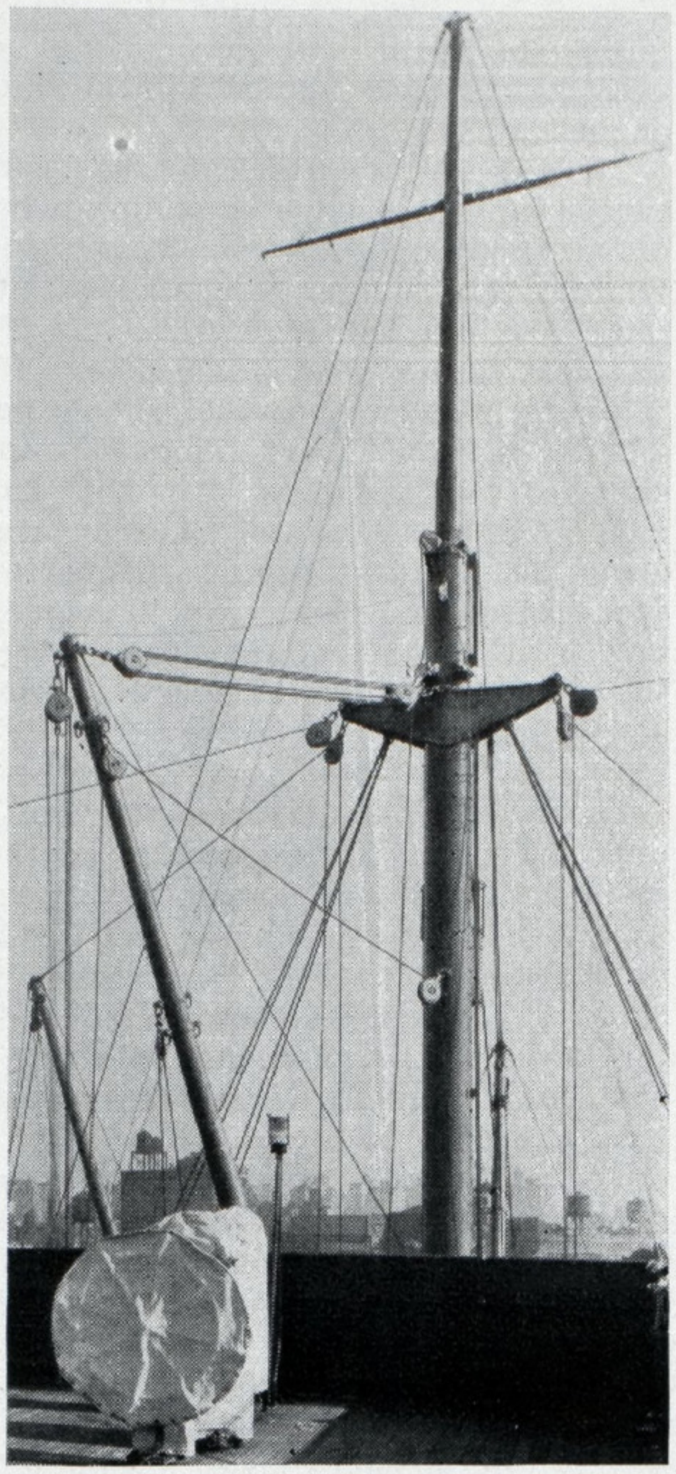
The davit heads are 65 feet above the waterline, and the falls consist of three-fold purchases of the best 3¾-inch four-stranded manila, with a breaking strain of five tons.

The falls are ordered in special coils of 85 fathoms each; this allows for six parts from the davit heads to the water, and about 100 feet spare for stretching along to the boat winches for hoisting purposes. The blocks are of iron, with patent sheaves. The lower blocks have a swivel and a long link for hooking on to the boat, and riveted to the top of the blocks are iron outriggers about two feet long. A length of one-inch wire is shackled between the outriggers of the two lower blocks, to prevent the falls from twisting when the boat reaches the water and they are unhooked.

Before reeving off the falls, the coil is opened and well stretched and all the turns taken out. The end is then rove and the standing part secured to the davit-head with a cow-hitch and seizing. The remainder of the coil is then wound on to a horizontal reel opposite the boat and protected by a canvas cover. These reels are a much better idea than tubs for stowage, as the rope is always dry and well aired.

Are Renewed Every Year

Every six months, the falls are turned end for end, and every year they are completely renewed. The renewals are arranged to a timetable so that one or two boats are taken in hnd each voyage. At the same time, blocks are overhauled and the boat and its equipment put in good order. Despite the objections to rope boat falls, the four-stranded manila with hempen heart as supplied today, is a good, sound rope, waterproof and pliable, and if properly handled is quite satisfactory. Boat drills now take place at least once a week, and in the course of three voyages, every boat in the ship is lowered to the water. This ensures that the falls are well stretched, free from turns and in good running order, and the crew become expert in handling them.



A good illustration of rope for standing rigging, stays, topping lifts and cargo falls—S. S. California

It may be mentioned in passing, that the British board of trade now demand that 60 per cent of the crews of all passenger carrying vessels shall be in possession of lifeboat certificates. The examination for this certificate demands that the candidate, whether he be a seaman, fireman, steward or cook, shall have a good working knowledge of the boat and its gear, including the compass, and that he is able to launch the boat and handle it under oars or sail. At the present time, the crews of Cunard vessels are over 90 per cent certificated, and the whole of the training has been given by the ship's officers during the voyages.

Although it is a company's rule that boat falls be renewed once a year, it is my opinion that they would be quite safe and serviceable for eighteen months or two years. Orders must be obeyed, however, and when it is a matter of lifesaving appliances, nothing must be left to chance. The falls, when they have completed their life as such, can be devoted to several other uses such as boats painters, lifelines from the davit spans, boat ropes and guess warps, derrick guys, lashings, cargo slings and spare rope for use in accident or salvage jobs. A considerable number of old falls are therefore always retained on board, and the rest landed as old rope. Altogether, the falls amount to 2¾ miles of rope.

Our ship has fourteen derricks each tested for a safe working load of five tons. They are supported by 4-inch flexible wire pennants passing through the masthead blocks, and 4-inch manila, three-stranded, two-fold purchases down to the deck, making it convenient for topping or lowering the derricks as required. The wire has a breaking strain of 40 tons, and the rope about 7 tons. The life of the wire is three to four years, and the rope is renewed every six months. All derricks and their gear are tested every year, in accordance with the factory act regulations.

Rope cargo falls of 3½-inch manila are in all cases supplied by the stevedores. It is a specially soft-woven brand, selected for its pliability and easy working on free drum ends. Owing to heat and friction on the drums, and the great strains imposed upon it, coupled with the risk involved when handling valuable cargo, it is renewed at the slightest sign of wear and tear.

Wire cargo falls are supplied by the ship. They consist of 60-fathom lengths of 2½-inch flexible steel wire, with a breaking strain of 17 tons. Two new falls are supplied each voyage, and they handle an average of 45,000 tons of cargo in and out, giving them an average life of about ten months. They are used by securing the ends to the center barrels of the winches, and the turns overlay one another as the barrels wind and unwind. This causes friction and the outer strands are gradually worn through.

New wire is liberally treated with oil during manufacture, and a good dosing of grease on the winch barrels helps to prolong its life. Worn out wires are no use and are generally dumped overboard—taking care to throw them well clear of the propellors!

Derrick guys consist of wire pennants, usually 2½-inch, and 2½-inch rope tackles. They last indefintely, and when any extra strain is to be imposed on the derricks, preventers are generally rigged.

Mooring Wires and Rigging

Four-inch wires are very handy for mooring purposes, and if necessary, can be put out on the bight, that is, double. They have little or no elasticity, and must be handled carefully, avoiding anything in the nature of a jerk. Given reasonable care they should last three to four years. Chain stoppers, and compressors used for hanging off purposes, play havoc with wires and should be avoided if possible. It is better to bring the ship into berth with ropes, and then use the wires for mooring afterwards.

What might be called small stuff, includes point line (manila), for lashings, boat's grab lines, etc.; ratline (hemp), for heaving lines; boat lac-

(*Continued on Page* 40)

Increase in Exports Noted Shipping Improves

The National Foreign Trade council calls attention to the increasing share of manufactured goods among American exports as marking renewal of active business abroad. Led by a notable turn for the better in Latin America, the proof of how far the recovery movement in American foreign trade has already gone is shown by the fact that in 16 countries widely scattered over the world, American exports for the first six months of this year are better than last year. Six of these countries are in Latin America—Argentine, Brazil, Chile, Venezuela, Colombia and Mexico; six are in Europe—Italy, Germany, France, Finland, Spain and Belgium; and four —Australia, New Zealand, South Africa and Egypt—are more or less closely related to the British Empire.

The proportion of manufactured goods among the American exports is now more than 67 per cent for the present year compared with 63 per cent for the first half of last year. Among the long list of manufactured articles which are sharing in this decided gain in exports are: Automobiles, accounting and calculating machines and other office equipment, iron and steel scrap, coal tar products, radio receiving sets and tubes, typesetting machines, power pumps, and power driven milling machines. More than $3,000,000 worth of American aircraft has been exported this year, largely to South America, and also a greatly increased number of aircraft engines.

The tide of the American trade has turned, after a decline extending over 46 successive months, ever since September, 1929, with a declared export total for June of $119,809,000, or 8 per cent better than June, 1932. If this rate is maintained 1933 should be a better year for exports than 1932. In spite of the fact that, for the six month period ended July 1, they are about 20 per cent behind the corresponding period last year in value, this is a distinct improvement over the year 1932, when our exports were 31 per cent below those of 1931.

There were 749 steam, motor, sail, unrigged and yachting vessels aggregating 193,313 gross tons built in American shipyards during the fiscal year ending June 30, 1933, according to A. J. Tyrer, assistant director of the bureau of navigation and steamboat inspection. All vessels of five net tons and over are included.

The statistical compilation of the bureau shows that in the commercial class there were 19 steam vessels of 155,876 gross tons, 520 motor propelled vessels of 12,612 gross tons, 3 sailing vessels of 46 gross tons, and 100 unrigged vessels of 22,269 gross tons; and in the pleasure class, 105 motor vessels with an aggregate tonnage of 2,451; 1 sailing yacht of 18 gross tons, and 1 house-boat of 41 gross tons.

Shipping Board Dissolved Activities to Continue

The shipping board as a separate entity is no more. Like other independent bodies, it was abolished in the reorganization of government activities under the economy plan. Activities carried on by the shipping board, however, have not been discontinued. These activities will be carried on by a bureau of the department of commerce designated as the shipping board bureau. To supervise the work of this bureau, Secretary of Commerce Roper, recently appointed all three members of the shipping board as an advisory committee to work out a plan of reorganization.

The fomer shipping board chairman, Admiral H. I. Cone, has been appointed chairman of the new committee. He will be assisted by Capt. David W. Todd and Copt. Gatewood S. Lincoln, who were associated with him on the old shipping board. This step has been taken, according to Secretary Roper, in order to more effectively perform the activities of the shipping board, the functions of which now come under the commerce department.

It is understood that Admiral Cone will report to the secretary of commerce through Ewing Y. Mitchell, assistant secretary of commerce in charge of all marine activities.

The transfer to the department of commerce became effective Aug. 10.

Cordillera, Twin Screw German Motorship

THE new passenger and freight motorship CORDILLERA, built by Blohm & Voss, Hamburg, for the Hamburg American line, successfully completed her trial trip on July 29 and 30 and was taken over by the steamship company. Her sistership CARIBIA was described in detail in MARINE REVIEW for May.

Like her sistership CARIBIA, which entered the service Feb. 25, 1933, the CORDILLERA is a twin screw motorship of about 12,000 gross tons and a displacement of 16,400 tons. She is powered by two 8-cylinder, double acting, two-stroke cycle, solid injection, diesel engines of the Blohm & Voss—M.A.N. type, which develop together 11,000 horsepower and give the ship a speed of 17 knots. The passenger accommodations on the CORDILLERA are of exceptional beauty and comfort, comprising all the advantages of a vessel built specially for the tropics. She carries a crew of about 190.

The CORDILLERA, same as her sistership CARIBIA, will enter the passenger and freight service between Hamburg and Barbados, Trinidad, Venezuela, Colombia and the East coast of Central America. First, however, she will go on a cruise to the Atlantic islands (Madeira, Canary Islands, Azores and Isle of Wight) from Aug. 8 to Aug. 31, to enter the regular Central American service about the middle of September.

Cordillera, Twin Screw Passenger and Cargo Motorship for Hamburg-American Line. Trials completed July 30, 1933

At the outbreak of the World war, the United States had but 17 vessels in overseas trades, while at the present time 500 American ships are engaged in foreign trade. They carry our products from 16 Atlantic, 19 Gulf, and 24 Pacific coast ports to markets in some 125 foreign lands. American goods, reaching seaboard, are now assured of dependable transportation to every market on earth.

Lilac, New Lighthouse Tender Twin Screw, Steam Drive

ANOTHER new lighthouse tender, the LILAC, has been completed and was delivered to the lighthouse service by the builder, The Pusey & Jones Corp., Wilmington, Del., on Aug. 11. The accompanying photograph of the LILAC was taken on her trial trip. She enters service in the fourth lighthouse district, Philadelphia, for the maintenance of buoys and lighthouses in Delaware river and bay.

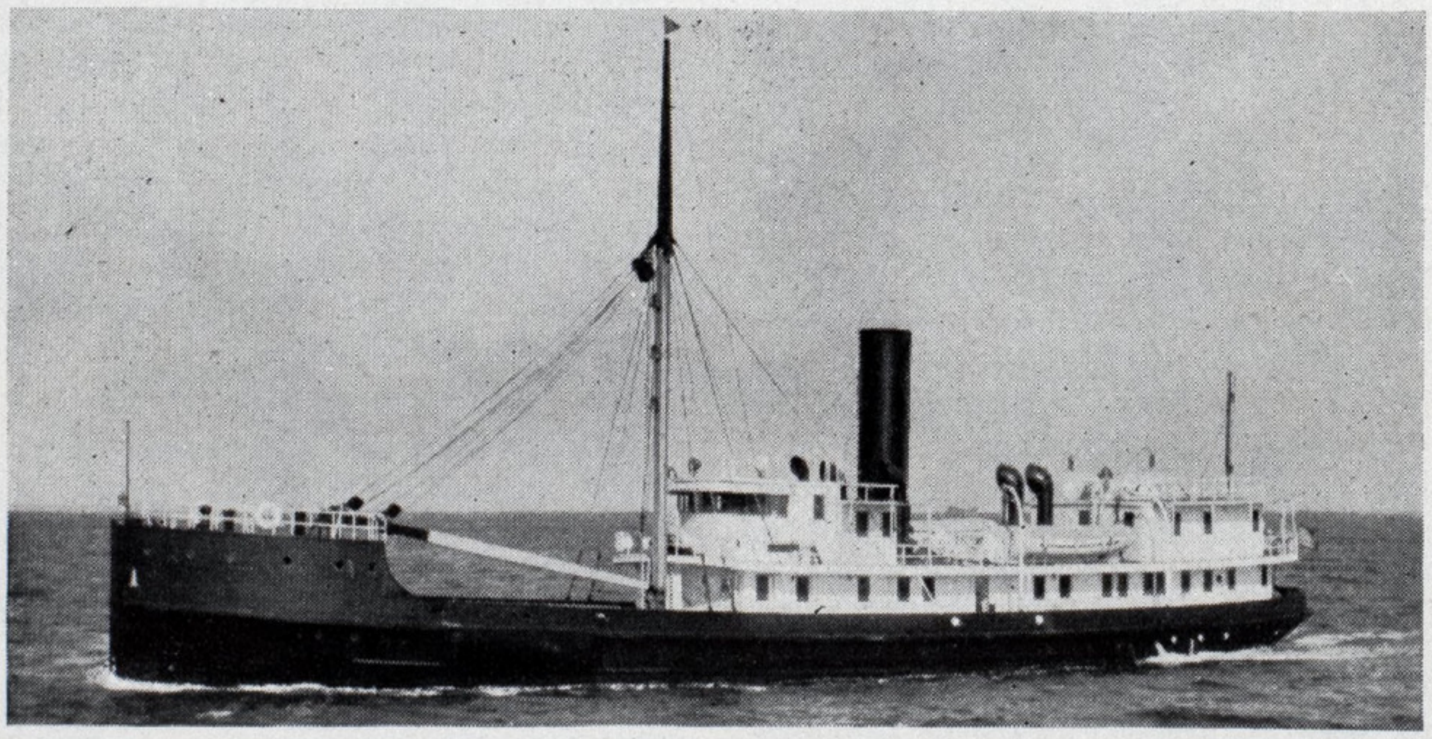
The LILAC is a twin screw steam propelled vessel quite similar in practically all respects to the ARBUTUS completed June 6 at the same shipyard. The only material difference in dimensions is in the overall length and in the molded depth. Her length overall is 170 feet; length between perpendiculars 163 feet, 6 inches; breadth molded, 32 feet; and depth molded, 13 feet. The displacement loaded is 770 tons at a draft of about 10 feet, 7 inches. The cargo capacity is 200 tons, and the bunker fuel capacity in gallons is 30,000. The speed is 13 knots. The LILAC was launched May 26. Including equipment the cost complete is approximately $225,000.

The propelling power consists of two triple expansion steam engines built by John W. Sullivan Co., East Ninth street, New York, N. Y. Each engine, directly connected to a propeller, has three cylinders of 11½ x 19 x 32 inches diameter cylinders and 24 inches stroke and develops an indicated horsepower of 500 at 160 revolutions per minute, making a total of 1000 horsepower.

Steam is supplied by two water-tube boilers built by the Babcock & Wilcox Co. with a total heating surface of 5000 square feet. The boilers are oil fired and are fitted with oil burning equipment supplied by the Babcock & Wilcox Co.

A 20-Ton Derrick Fitted

There are two electric generators for electric light and power supplied by the General Electric Co. The pumping equipment includes one main circulating pump; a sanitary pump; fire and bilge pump; main air pump; main feed pump; auxiliary feed pump; a fresh water pump; two fuel oil service pumps; and one fuel oil transfer pump. Pumps were supplied by the M. T. Davidson Co. One main condenser serves both engines.



The loading equipment is similar to that fitted on the ARBUTUS and consists of one 20-ton derrick mast and 50-foot boom served by one double steam winch, 10 x 12 inches cylinders, and four drums. This winch or cargo hoister is located in the cargo hold just aft of the cargo hatch through the main deck. The hatch is 8 feet, 6 inches by 9 feet in size. The cargo hoist was supplied by the Lidgerwood Mfg. Co., Elizabeth, N. J.

The Lidgerwood company also supplied the spur geared steam windlass and the steam steering gear. A shaft from the windlass operates a capstan on the forecastle deck.

The cold storage for provisions is located on the main deck in the forward part of the house. Refrigeration is supplied by Frigidaire Corp. equipment.

The arrangement for quarters is similar to that of the ARBUTUS, the crew being located forward on the lower deck and the petty officers aft on the same deck. The crew's washroom toilets, deck store locker and lamp locker are located in the forecastle. Galley, crew's messroom, officers' staterooms, baths, pantry and dining room are located in the steel deck house on the main deck.

The pilot house with master's quarters and bath adjoining are located on the upper deck forward. On the same deck aft are located the stateroom for the superintendent, spare stateroom, superintendent's dining room and the radio room.

Arrangement of Hold Space

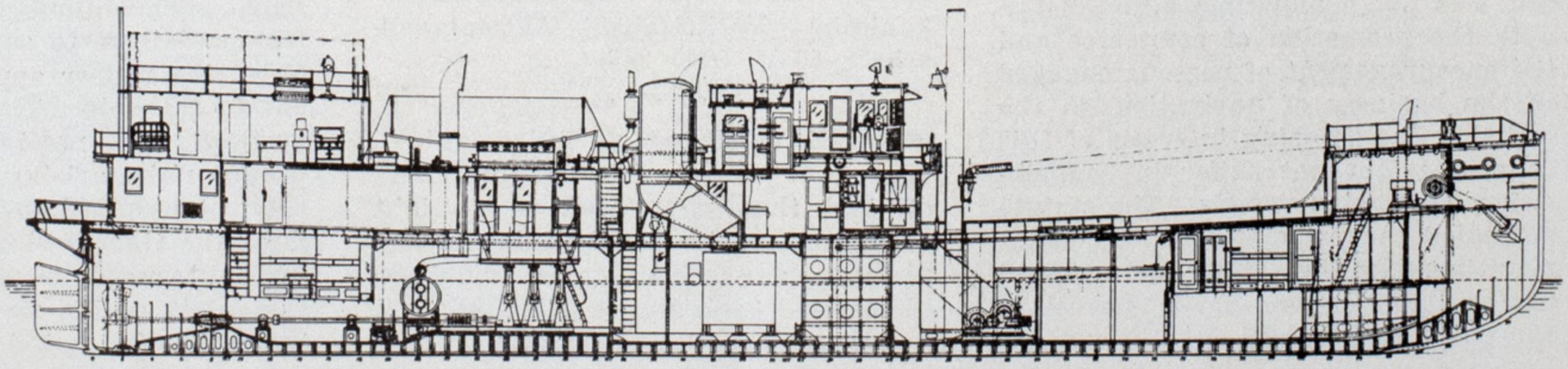
The boiler space is located just aft of amidships with fuel oil compartments just forward of this space and aft of the cargo hold. The engine room is located directly aft of the boiler space. Fresh water is carried in a built-in tank immediately below the crew's quarters. There are trimming tanks in the extreme bow and stern.

The design of these new vessels for lighthouse service is based on years of practical experience. They are sturdy, efficient, easily maneuvered vessels and are especially suitable for the work of maintaining buoys and lighthouses.

The Babcock & Wilcox Tube Co., Beaver Falls, Pa., announces the appointment of T. F. Thornton sales manager of the Detroit district with headquarters in the Ford building, Detroit.

◆

LILAC—twin screw, reciprocating steam engines. Speed 13 knots. Lighthouse tender, built by The Pusey & Jones Corp. for Lighthouse Service



Late Decisions in Maritime Law

Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review
By Harry Bowne Skillman
Attorney at Law

WHILE it is the duty of all shifting and towing boats, and their owners and agents, to keep themselves informed of storm warnings, if posted where they can be readily obtained, the individual or corporation directing the loading of boats is under no obligation to ascertain such facts by calling up weather bureau stations somewhat remote, where the wind conditions are radically different, if there are no indications of a storm at the place where the boat then is.—Northwestern Fire & Marine Insurance Co. v. Seaboard Sand & Gravel Corp., 2F. Supp. 1019.

* * *

WITHIN the District of Columbia, congress has the plenary power to control navigation which was vested in the United States before the cession from the state of Maryland of the area constituting the District of Columbia and which it exercises generally over navigable waters within the several states; it also acquired by the cession proprietary powers over the lands lying under water, and, under the constitution, sovereign power to regulate and control their use for public purposes.—United States v. Dern, 53 Sup. Ct. Rep. 614.

* * *

ORDINARILY, the primary obligation to pay the carrier's charges rests upon the shipper even when the bill of lading in terms imposes a liability upon the consignee; and this obligation survives although the shipper has assigned the bill of lading to another who receives the goods.—ARIZPA, 63 F. (2d) 42.

* * *

THE federal statute limiting the liability of shipowners was enacted to encourage investments in ships and their employment in commerce. That purpose embraced the promotion of shipbuilding, but it was not concerned with construction as a mere enterprise of manufacture, which itself was not a maritime activity, but with the promotion of commerce and the encouragement of persons engaged in the business of navigation, to the end that the shipping interests of this country might not suffer in competition with foreign vessels. The statute embodied the principle of the general maritime law that shipowners should not be liable beyond their interest in the ships and freight for the acts of the master or crew done without their privity or knowledge. The liability thus limited is an imputed liability; it is a liability imputed by law by reason of the ownership of the vessel. For its own fault, neglect, and contracts the owner remains liable. In American Car & Foundry Co. v. Brassert, 53 Sup. Ct. Rep. 618, it was held that a vendor retaining title to a vessel solely for the purpose of securing the purchase price of the vessel was not, prior to default, liable as owner for acts of the vendee or of master and crew, as regards the right to limitation of liability.

* * *

AN EXPRESS warranty of fitness for the voyage requires the vessel to be bunkered, or at least to have adequate bunkers available, when she goes to her loading berth.—United States v. Bowring & Co., 63 F. (2d) 224.

* * *

THE privileged vessel must keep her course and speed until it becomes apparent that the burdened vessel cannot alone avoid collision; and the privileged vessel, crossing the course of the burdened vessel, is under no duty to sound a passing signal. —BOSTON SOCONY, 63 F. (2d) 246.

* * *

WHEN a voyage is undertaken in stages, the strict requirement that a vessel be seaworthy when it breaks ground is fulfilled by equipping the vessel at each stage for the next leg of the voyage. But permitting the owner to supply at stages of the voyage equipment known to be required at its inception does not mean that damages incurred during the voyage must be repaired by the owner at an intermediate port of call or that failure to do so violates the requirement of seaworthiness. Failure of the master or the agent of the owner to make such repairs is an error of management. — May v. Hamburg-Amerikanische Packetfahrt Aktiengesellschaft, 63 F. (2d) 248.

* * *

ONE employed as third officer, who, on arrival in port, was paid off and then re-engaged as a night watchman on the vessel while she was undergoing overhauling in dry dock, his duties consisting of patrolling and guarding the ship and seeing to it that she rested on the keel blocks, was not a "member of crew," within exception of statute denying compensation to "member of crew."—Union Oil Co. v. Pillsbury, 63 F. (2d) 925.

* * *

WHERE the sinking of a barge was due to the charterer's negligence, the charterer is not entitled to offset the owner's damages by the expenses to which it was put in raising the boat.—O'Boyle v. United States, 2 F. Supp. 853.

* * *

VESSELS of foreign nations entering ports of the United States may be exempted from payment of tonnage and impost duties, upon a showing satisfactory to the President of the United States that no discriminating duties of tonnage or imposts are imposed in the ports of such nation against the vessels of the United States. The one important and necessary thing to be shown by the nation seeking the exemption of its vessels from the tax is that such nation, at the time it seeks its exemption, does not impose discriminatory duties upon the vessels of the United States, and such showing must be made to the satisfaction of the President of the United States. The duties imposed by the United States are retaliatory in their nature and intent, and are applicable to all foreign nations alike. —Standard Oil Co. v. United States, 2 F. Supp. 853.

* * *

WHERE a pilot is confronted with an emergency, the regulations have no particular force, and it would be reasonable to disobey them to avoid an accident.—WYOMISSING, 2 F. Supp. 954.

* * *

WHILE a seaman assumes the ordinary risks of his employment, he does not assume risk of injury from obvious dangers if they arise from a failure to supply and keep in order the proper appliances appurtenant to the ship. This is a duty both positive and nondelegable. Extraordinary risks arising from the breach are not assumed, even if the danger is at the time obvious to the seaman. The shipowner is not an insurer of the safety of his seamen.—Pittsburgh Steamship Co. v. Palo, 64 F. (2d) 198.

Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	270	1,477,769	256	1,397,794
June	249	1,482,801	264	1,580,337
May	255	1,573,337	244	1,513,231
April	232	1,330,774	232	1,311,863
March,	243	1,466,812	264	1,536,778
February	237	1,373,856	236	1,380,867
January	254	1,416,857	245	1,383,630
December	**244**	**1,307,332**	**253**	**1,387,341**
November	227	1,154,961	232	1,175,988
October, 1932	253	1,379,283	244	1,328,561

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	69	203,042	53	151,781
June	51	152,234	54	149,616
May	58	157,704	49	141,334
April	63	193,946	41	131,990
March	60	192,817	43	141,445
February	38	105,262	20	56,395
January	53	154,823	41	142,216
December	**44**	**141,426**	**37**	**116,120**
November	54	154,796	41	130,250
October, 1932	57	167,539	42	115,660

Boston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	124	410,500	96	379,721
June	118	378,179	93	303,239
May	111	295,854	83	254,667
April	86	271,864	69	226,862
March	85	259,203	65	240,768
February	83	285,162	53	191,084
January	97	329,575	56	211,428
December	**98**	**300,132**	**64**	**241,693**
November	88	308,164	59	220,530
October, 1932	99	332,754	68	249,150

Portland, Me.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	11	24,324	9	23,063
June	11	24,615	12	26,271
May	13	19,020	13	23,395
April	5	9,254	5	7,387
March	9	24,186	10	23,989
February	19	52,001	19	48,913
January	14	35,038	13	34,153
December	**17**	**43,705**	**16**	**40,396**
November	7	9,785	6	10,174
October, 1932	8	21,407	7	18,228

Providence

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	3	6,171	2	9,465
June	6	16,192	2	4,437
May	3	10,490	3	3,834
April	8	30,156	2	5,650
March	4	17,052	....	.....
February	7	27,520	1	4,393
January	2	7,473	1	3,171
December	3	7,918	2	8,820
November	4	13,673	3	11,066
October, 1932	3	13,133	3	9,683

Portland, Oreg.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
June, 1933	20	78,651	34	120,089
May	25	98,688	28	105,115
April	17	67,220	24	97,104
March	20	79,537	43	162,970
February	25	97,554	34	130,014
January	24	95,271	33	138,372
December	**22**	**92,267**	**41**	**166,858**
November	**19**	**78,628**	**41**	**157,544**
October	25	98,792	46	182,167
September	25	98,370	37	146,945
August, 1932	22	93,256	32	127,572

Baltimore

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	91	272,589	90	282,788
June	65	205,724	71	240,487
May	79	237,046	78	229,333
April	63	198,940	58	178,957
March	72	228,806	72	223,594
February	63	195,299	75	226,672
January	77	247,903	78	252,052
December	**75**	**238,598**	**68**	**224,544**
November	80	254,047	83	262,796
October	98	281,907	94	281,534
September, 1932	66	190,459	80	241,287

Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	16	32,370	34	71,798
June	16	30,163	31	60,544
May	18	33,521	32	68,941
April	14	39,010	36	100,485
March	18	56,097	42	111,038
February	16	49,213	36	82,544
January	20	58,470	33	76,493
December	**28**	**77,286**	**38**	**92,621**
November	20	54,678	35	79,516
October, 1932	15	60,775	36	80,792

Jacksonville

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	13	22,553	11	25,670
June	9	22,192	6	12,222
May	5	13,102	9	16,275
April	3	8,297	8	20,260
March	7	18,536	9	18,137
February	6	15,126	7	13,454
January	3	4,683	8	21,018
December	**10**	**24,067**	**10**	**24,595**
November	10	24,352	2	1,799
October, 1932	8	16,714	8	13,659

Key West

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	24	39,400	22	37,180
June	27	40,569	27	42,160
May	41	55,097	39	59,075
April	41	50,121	35	47,458
March	42	57,720	39	54,508
February	37	52,615	34	49,320
January	38	55,322	38	54,692
December	**38**	**59,058**	**39**	**58,604**
November	37	64,384	37	61,961
October, 1932	35	62,394	35	62,394

Mobile

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	110	221,610	114	236,622
June	97	206,147	91	183,736
May	95	210,743	105	231,000
April	105	209,469	109	235,429
March	96	234,328	91	206,064
February	80	184,669	83	200,850
January	100	232,451	91	201,671
December	**86**	**204,295**	**92**	**209,061**
November	94	210,195	97	234,590
October, 1932	105	228,041	105	238,510

Seattle

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	166	545,372	169	554,228
June	36	160,127	36	157,887
May	37	149,245	38	164,025
April	41	188,899	40	180,517
March	47	194,485	51	216,803
February	43	196,979	43	190,338
January	50	212,954	49	210,083
December	**45**	**202,731**	**47**	**207,521**
November	43	193,530	45	200,513
October, 1932	53	235,224	58	251,334

New Orleans

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	169	468,111	184	493,775
June	147	422,280	146	422,235
May	150	444,982	151	434,952
April	142	409,411	154	416,833
March	161	464,728	161	457,880
February	128	378,040	127	366,948
January	135	307,750	145	410,412
December	**151**	**434,935**	**157**	**450,545**
November	146	442,427	156	457,621
October	140	403,062	150	424,621
September, 1932	151	423,791	139	415,704

Charleston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	35	102,115	29	82,742
June	32	84,362	28	75,023
May	21	53,125	20	49,888
April	19	49,280	20	52,449
March	35	99,612	29	83,243
February	24	65,228	24	65,218
January	28	83,545	23	65,063
December	**24**	**58,943**	**24**	**63,086**
November	33	93,457	30	85,072
October, 1932	14	33,693	12	34,625

Galveston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	22	33,718	77	213,821
June	27	56,231	79	227,842
May	27	58,632	86	261,124
April	27	64,360	73	215,020
March	19	34,677	83	239,683
February	17	29,935	69	200,485
January	23	43,723	79	235,748
December	24	39,491	103	311,999
November	29	64,016	102	314,452
October	26	54,231	94	277,977
September, 1932	25	33,083	85	236,532

Los Angeles

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	165	641,116	152	601,731
June	189	670,782	171	671,704
May	190	600,184	185	630,905
April	178	625,508	190	614,741
March	152	550,205	167	599,191
February	143	528,613	155	543,628
January	162	633,944	169	668,576
December	**152**	**538,392**	**156**	**560,901**
November	194	645,826	195	662,569
October, 1932	209	641,131	201	657,641

San Francisco

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	156	710,857	154	717,664
June	162	715,236	162	738,436
May	160	717,412	161	680,493
April	138	733,163	150	652,593
March	145	667,902	156	693,893
February	145	658,005	144	621,439
January	154	672,230	147	657,934
December	**135**	**608,843**	**170**	**579,362**
November	154	672,184	152	655,379
October, 1932	147	669,637	166	727,969

Houston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1933	33	122,722	40	153,173
June	28	96,996	34	118,058
May	32	127,718	43	164,896
April	20	80,016	29	103,049
March	16	71,995	28	101,486
February	20	71,711	28	95,755
January	19	72,798	33	110,421
December	**13**	**45,319**	**30**	**95,323**
November	22	86,895	28	106,050
October, 1932	21	81,274	37	136,509

Note: The figures given in this table are for direct entrances and clearances. Additional vessels in foreign trade enter and clear from and to other American ports after original entry and before final departure. At the port of Philadelphia, for instance, additional vessels in the foreign trade in this category were 88 of 285,605 net tons entered and 68 of 239,134 net tons cleared for the month of July.

Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Shipping Board Loans Made, Authorized or Pending

RECORDS prepared under the direction of A. J. Tyrer, assistant director, of the bureau of navigation and steamboat inspection, show that ship construction in American shipyards increased nearly 100 per cent during the month of June.

The report shows that 60 vessels of 34,846 gross tons were under construction in June compared with 47 vessels of 17,671 gross tons in May; 31 vessels of 11,536 gross tons in April and 40 vessels of 14,236 gross tons in March. The figures for June were larger than for any month since December, 1932. It is believed that the month of July will also show a marked increase. Several new projects will be added when the records are made up.

The tonnage on construction in June included three seagoing steam and diesel vessels of 1000 gross tons or over, totalling 10,600 gross tons; four coastwise vessels from 100 to 999 gross tons; 48 unrigged steel vessels of 100 gross tons or over, for coastwise, harbor or river travel, totalling 21,809 tons; and five unrigged wooden vessels of the same class totalling 1587 gross tons.

To Build Steel Motorship

Contract has been awarded to the Lake Washington Shipyards, Seattle, for the construction of a steel passenger and freight motorship for the Northland Transportation Co. Bids for the construction of this vessel were reported in the July MARINE REVIEW. The contract was placed at bid of $440,060 for the vessel complete, with delivery specified on May 1, 1934. The shipping board on July 31 approved a loan from the construction loan fund to the Northland Transportation Co. to aid in the construction of this new vessel. The loan by the board will be for three-fourths of the cost of construction and not to exceed $350,000.

This is the largest steel vessel to be built in the Pacific Northwest in several years. The new vessel is to be a combination passenger and freight motorship for the service of the Northland Transportation Co., Seattle, to southwestern Alaska. The vessel will be 231 feet in length, with a beam of 40 feet 10 inches; a depth of 22 feet 6 inches; and a draft of 16 feet. The estimated gross tonnage will be 1800. Accommodations are to be provided for 100 first class passengers in two berth staterooms and for 22 passengers in second class.

The cargo capacity will be 1500 tons and includes about 3400 feet of refrigerated space mostly for handling fresh fish. The new vessel which is being designed by M. H. Keil, Seattle naval architect, will be especially suited for service between Seattle and Juneau, Alaska, and way ports. The owner now operates in this route the steel motorship NORTHLAND and the wooden motorship ORCO which the new vessel will replace.

It is understood that the contract has already been awarded to the Washington Iron Works, Seattle, for two 1000 horsepower, diesel engines for the main propelling machinery. The same company will also furnish the engines for two 75-kilowatt diesel driven generators and several diesel driven pump units. The two main propelling engines represent the largest marine diesel contract so far awarded in the Pacific Northwest. The Washington Iron Works, however, did build a 1000 horsepower diesel engine for the ferry VASHON.

Contract for auxiliary and deck equipment, including electric steering gear cargo winches, capstans, and whistle, has been awarded to Allan Cunningham, Seattle.

The new vessel will have a speed of from 12 to 13 knots and bunker capacity will be provided for a steaming radius of 9000 miles.

New York Shipbuilding Co.

E. L. Cord, widely known in the automotive and aviation industries, and his associate L. B. Manning, have obtained control of the New York Shipbuilding Co., Camden, N. J. At a meeting of the directors of the New York Shipbuilding Co., Aug. 2, Mr. Cord was elected chairman, and the following directors were named: L. B. Manning, C. L. Bardo, W. M. Flook, R. J. Leibenderfer, W. H. Beal, J. E. Slater, R. S. Pruitt, P. Q. Smith and A. B. Lockhart, Jr.

Clinton L. Bardo of Camden, N. J., who continues as president of the company, made the announcement of the change in control and administrative personnel after the meeting of the directors. Mr. Cord succeeds Wm. M. Flook as chairman, and Mr. Flook becomes vice chairman. Mr. Manning has been elected chairman of the executive committee of which Mr. Cord and Mr. Bardo are the other two members. Mr. Pruitt was named general counsel and secretary of the company. Mr. Cord explained the acquisition of the New York Shipbuilding Co. as an additional step in rounding out his other interests in the building of various units of transportation. In addition to air transportation the Cord company is also a manufacturer of automobiles, air craft, and automotive and marine engines for all purposes.

The New York Shipbuilding Co. was founded in 1899 and has a very solid reputation in the construction of naval and merchant vessels. The latest merchant work was the construction of the MANHATTAN and WASHINGTON for the United States lines, the largest merchant vessels ever built in the United States. It now has under construction the 10,000-ton cruiser TUSCALOOSA to be launched in about a year. On Aug. 3 this yard received a contract from the navy department for the building of two light cruisers and four destroyers, for a total amount of $38,454,000.

To Install Refrigeration

The Merchants and Miners Transportation Co. on Aug. 6 announced award to the Newport News Shipbuilding & Dry Dock of a contract totaling $330,000 for the installation of refrigeration systems in four of its vessels. These vessels are to be fitted for the transportation of fruit and other perishable merchandise between southern ports and the Atlantic seaboard, the vessels are the LAKE FLORIS, recently purchased from the United States shipping board and now being reconditioned by the Sun Shipbuilding & Dry Dock Co., Chester, Pa., the S. S. YORK, the S. S. ROANOKE, and the S. S. PROVIDENCE. The work is to be completed by Nov. 1.

When these vessels enter service complete refrigeration of cargo at an exactly suitable temperature will be possible. Heretofore vessels have been equipped with a system of forced draft ventilation, for this service and other vessels of this company are now so equipped.

The United States Engineer office, Philadelphia, on Aug. 18 opened bids for the purchase of the United States army engineer tug PHILADELPHIA and equipment. Three bids were received ranging from a low of $726 to a high $763.50.

Bids for Cargo Ship Aug. 31 For Swayne Hoyt

In the July MARINE REVIEW, it was reported that bids are to be opened Aug. 31 for a 7450 ton deadweight cargo and passenger steamer for the Gulf-Pacific Mail Line, Ltd. (Swayne & Hoyt Ltd.), San Francisco. Delivery of the new vessel will be about Sept. 1, 1934.

General dimensions of the vessel are: length between perpendiculars, 405 feet; beam molded, 59 feet; depth molded to shelter deck, 38 feet; depth molded to upper deck, 30 feet; designed load draft, 24 feet; with a corresponding displacement at this draft of about 11,500 tons.

Provision will be made for 12 first class passengers in six staterooms in an amidship house on the shelter deck. This house will also have a dining room, lounge and smoking room for passengers. Every stateroom is fitted with a private bath.

The design of the proposed vessel has been developed after careful consideration of the experience of the owner in the service for which she is intended. Geared turbine machinery developing 4000 shaft horsepower will drive a single propeller. Watertube boilers will furnish steam at 375 pounds per square inch. The vessel will have a sea speed of 13 knots.

To Recondition Two Ships

The Newport News Shipbuilding & Dry Dock Co. toward the end of July received a contract for reconditioning the two United Fruit liners ATENAS and CARRILLO at a cost of about $200,000 each. The vessels are to be completed within 50 days from the time of arrival at yard.

Passenger accommodations will be removed and both vessels are to be converted into freighters arranged to carry refrigerated cargo. It was reported that these vessels will be placed in a fully refrigerated steamship service between Florida and North Atlantic ports. Operations in this service, which will be in charge of a subsidiary company called the Refrigerated Steamship Line with headquarters at Pier 3, North river, New York, are to begin in November from Tampa and Jacksonville.

Houston Dry Dock

According to Admiral Frederick R. Harris, the Todd Shipyards Corp., New York, is to proceed with its $2,500,000 dry dock and repair yard project for Houston, Tex., and work will begin before Sept. 1. More than 1000 men will be given employment. This announcement is taken to mean that the Reconstruction Finance Corp. is to grant a loan of $1,100,000 to the Todd corporation in connection with the building of the dry dock. It is said that when completed, this dry dock and general ship repair plant should in normal times give employment to 1000 men in connection with the drydocking and repairing of ships.

Cunard and White Star

Sometime ago Neville Chamberlain, chancellor of the exchequer announced that the British government would consider providing the necessary assistance not only to complete the Cunard superliner, No. 534, but also to build a sister ship if the White Star line and the Cunard line entered into an agreement to coordinate their services across the Atlantic and to eliminate all unnecessary competition. Since then negotiations have been under way between officials of the two lines.

It is now said that these negotiations are likely to be successful, and it would not be surprising to learn that an agreement had been reached. In the event that such an agreement is reached, work on the Cunarder at the yard of John Brown, Clydebank, will be resumed. Plans for beginning the second liner will also be undertaken. It is a matter of speculation whether these plans will follow those prepared some years ago for the White Star line or those of the Cunard liner now on the stocks.

Postpone Opening Bids for Two Lighthouse Tenders

The bureau of lighthouses, department of commerce, has postponed to a later date its invitation to shipbuilders to submit proposals for the construction of two vessels to be known as the TAMARACK and HOLLYHOCK. Originally the date set for opening bids was Sept. 7. That bids will again be called for is definite, but the time for receiving bids has not been settled.

General particulars of these two vessels are as follows:

The TAMARACK is to be a single screw, diesel electric propelled, lighthouse tender. Length overall is to be 124 feet, 2¾ inches; length on the designed waterline, 111 feet 8 inches; beam molded, 29 feet; and minimum depth at side, 10 feet. The displacement at 7 feet molded draft in fresh water will be approximately 400 tons. Shaft horsepower of the electric propelling motor is to be 450 at 400 revolutions per minute. Current for operating this motor to be developed by two diesel engine driven generators of sufficient power. The speed of the vessel is to be 10¼ knots.

The HOLLYHOCK is to be a twin screw steam propelled lighthouse tender, generally similar to recently completed tenders ARBUTUS (See MARINE REVIEW for August) and the LILAC, as described on page 25 in this issue. Length overall of the HOLLYHOCK is to be 174 feet, 6½ inches; length on designed waterline, 163 feet, 6 inches; beam molded, 32 feet; minimum depth at side, 14 feet 6 inches. The displacement loaded at a mean draft of 10 feet, 7 inches in fresh water will be approximately 760 tons. Indicated horsepower total in two triple expansion reciprocating steam engines will be 1000 at 150 revolutions per minute. The two main engines will have diameter cylinders of 11½ x 19 x 32 inches and a stroke of 24 inches. Boilers are to be of the watertube type and will have a working pressure of 200 pounds.

It is understood that these lighthouse tenders are to be built for service on the Great Lakes, one to be attached to the Buffalo district and another to the Milwaukee district.

Bunker Prices

At New York

	Coal Alongside per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
Aug. 18, 1933	4.45@4.75	.90	4.32
July 18	4.30@4.60	.90	4.32
June 18	4.30@4.60	.80	4.08
May 18	4.30@4.60	.80	4.08
Apr. 18	4.30@4.60	.80	4.08
Mar. 18	4.30@4.60	.80	4.08
Feb. 18	4.30@4.60	.80	4.08
Jan. 17	4.50@5.00	.80	4.08
Dec. 16	4.50@4.75	.80	4.75
Nov. 18	4.50@4.75	.80	4.08
Oct. 18 1932	4.50@5.00	.80	4.08

At Philadelphia

	Coa trim in bunk per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
Aug. 18. 1933	4.45@4.75	.90	4.28
July 18	4.30@4.60	.90	4.28½
June 18	4.30@4.60	.80	4.04
May 18	4.30@4.60	.80	4.04
Apr. 18	4.30@4.60	.80	4.04
Mar. 18	4.30@4.60	.80	4.04
Feb. 18	4.30@4.60	.80	4.04
Jan. 17	4.50@5.00	.80	4.04
Dec. 16	4.00@4.75	.80	4.04
Nov. 18	4.00@4.75	.80	4.04
Oct. 18 1932	4.50@5.00	.80	4.04

Other Ports

Aug. 18, 1933

Boston, coal, per ton	$8.73
Boston, oil, f. a. s. per barrel	$0.78
Hampton Roads, coal, per ton, f.o.b. piers	$4.50
Cardiff, coal, per ton	13s 9d
London, coal, per ton	—s —d
Antwerp, coal, per ton	17s 3d
Antwerp, Fuel oil, per ton	67s 6d
Antwerp, Diesel oil, per ton	82s 6d
British ports, Fuel oil	87s 6d
British ports, Diesel oil	102s 6d

Equipment Used Afloat and Ashore

New Type Marine Deaerating Heater—Open Sided Pipe Vise—Improved Condenser Equipment—Cargo Winch—Baggage Truck

HOW to prevent oxygen corrosion has become a definite problem with the use on shipboard of high pressure steam together with steel tube economizers and steam turbines. To meet the special conditions encountered and to overcome this problem, the Cochrane Corp., Philadelphia, has developed a deaerating heater.

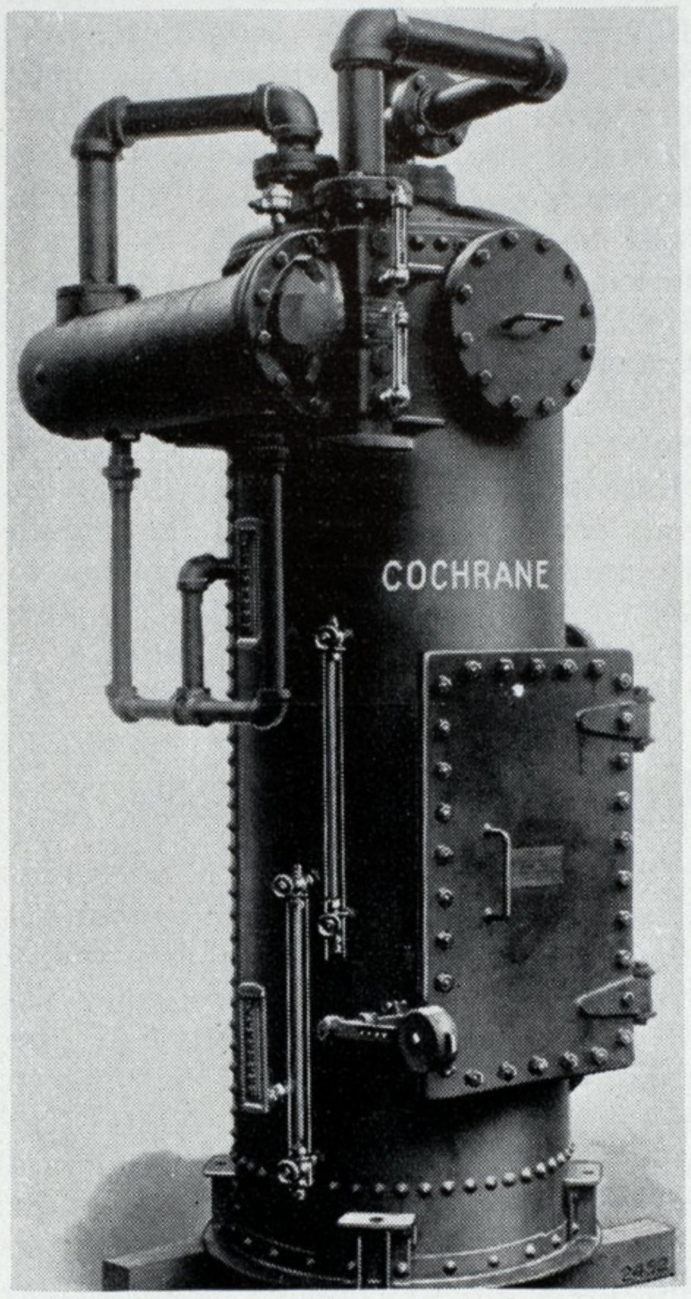
Due to rolling and pitching of the vessel, it is not desirable to use a tray type of heater for this service and therefore for heating the water a multiple jet spray is used in the new heater. The spray nozzle has two delivery zones which are separated by a floating, spool shaped member, so proportioned that the two sprays are approximately equal and are directed at divergent angles so that they will not coalesce. A counter-weight acting on the nozzle valve maintains the water spray under a constant pressure, regardless of load, and the spray is therefore equally efficient at all loads. The water is sprayed outwardly into a drum shaped heating chamber which is subdivided into segmental chambers by radial baffles to insure that when the heater is in an inclined position the water sprayed to the high side cannot run down to the low side, but must come down in its proper segment.

The water, heated by spraying in a steam atmosphere, after being collected by the cone-shaped bottom of the heating chamber, is delivered through an opening onto a central cone-shaped atomizing valve, from under which is discharged and upwardly directed a conical steam jet. This thoroughly atomizes and deaerates the water and sprays it out again into the portion of the heater shell underneath the first spray chamber. After this atomization the water drops into the storage space and thence flows to the boiler feed or removal pump. The speed of the latter is generally controlled by a large float guided by a double suspension and located at the center of the water storage space in order, so far as possible, to break up the formation of waves and to prevent splashing.

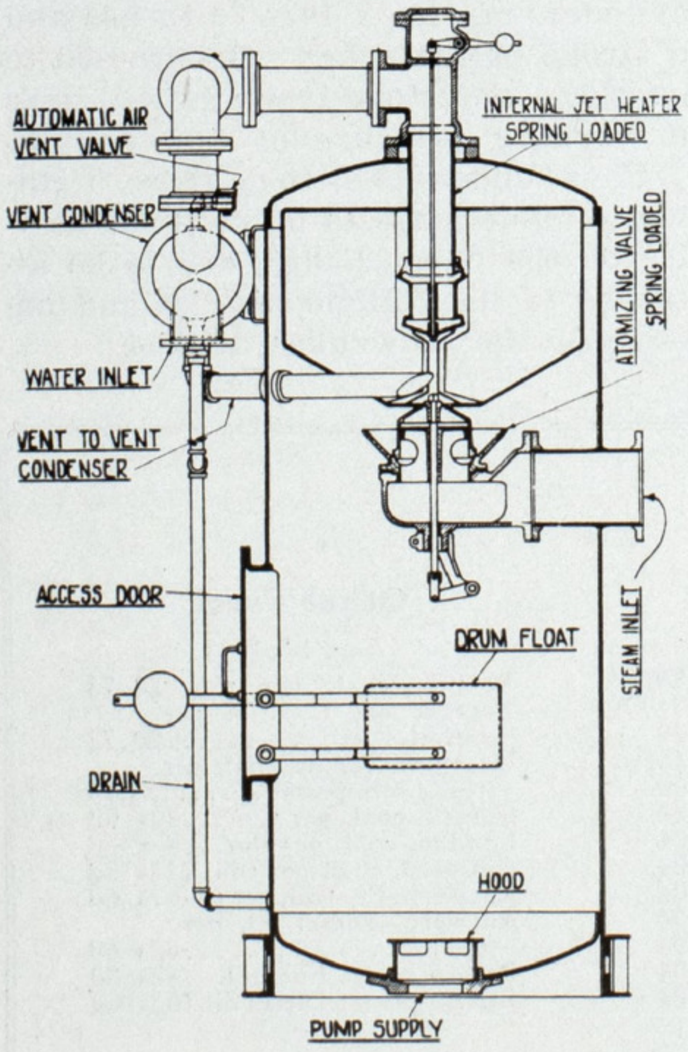
Gases released from the water in the steam atomizing spray, together with the bulk of the steam, pass upward through the annular space between the outside of the heating chamber and the shell and enter downwardly into the heating chamber to heat the water sprayed from the spring loaded water spray valve first described, at which point the larger part of the steam is condensed. The remaining non-condensible gases, with a certain percentage of water vapor, are drawn off from the bottom of the heating chamber through a vent pipe to a vent condenser, wherein the vented vapor is condensed and then air-cooled by the cold entering water on its way to the spray valve. When the heater operates at a pressure greater than that of the atmosphere, the gases escape directly but when the deaerator operates under vacuum, an air pump or steam ejector is required for their removal.

The steam atomizing valve is spring loaded for two purposes; first to insure a constant steam spouting velocity for atomizing the water uniformly at varying loads, and second, to insure that the valve will be shut when there is no steam flow in order to prevent back flow of water into the steam pipe. The loading spring is external to the heater where it can readily be adjusted. A drop in pressure of one pound across the valve has been found to be sufficient to give good atomizing action. The movement of the steam valve is steadied by a vapor cushion chamber.

Offtake to the pump supply is through a hooded outlet at the bottom, with a raised baffle to prevent the drawing of scale and sediment into the pump supply line.



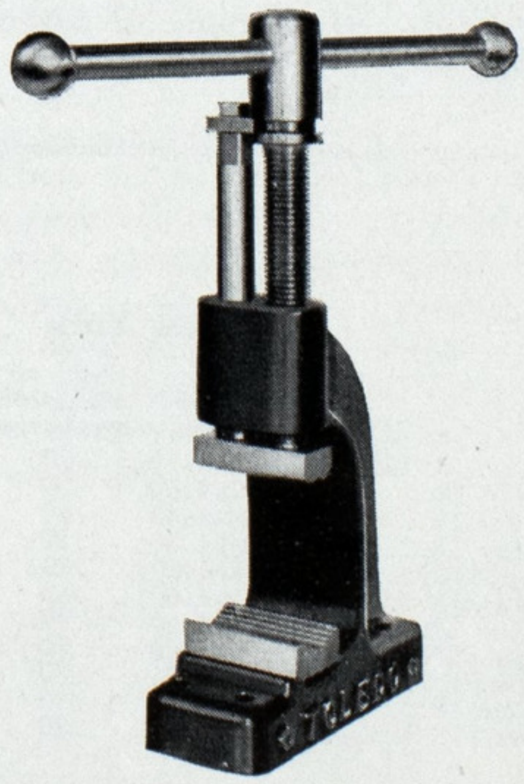
Complete Marine Deaerating Heater



New Type Deaerating Heater

Open Sided Pipe Vise

A NEW line of open-side pipe vises has been developed by the Toledo Pipe Threading Machine Co., 1425 Summit street, Toledo, O. One of these vises is shown in the accompanying illustration. They are made in three sizes covering capacities ranging from ⅛ to 4½-inch pipe.



Open-sided type of pipe vise

Improvements in Marine Condenser Equipment

OF THE many alterations which can be made to improve the overall performance of a ship, the modernization of condensing equipment offers important economies. With this in view the Westinghouse Electric & Mfg. Co. has conducted extensive studies on improvements in marine condensers and condenser auxiliary design. The following basic considerations were kept in mind in order of their importance: utmost reliability; accessibility; simplicity; reasonable first cost; best economy; low maintenance; and ease of installation.

These studies, combined with the extensive experience of the company in design and operation, have led to developments which will give definite economies when applied to existing ships and will insure maximum results from modern propelling systems in new vessels. Furthermore, many of the new design features can be applied to condenser equipment on existing ships, without removing the condenser shell from the ship, and resulting in greater economy or increased speed.

Radial Flow Principle

Features of the new design include the radial flow principle, which is a definite advance in marine engineering. More than thirty of these condensers are now in service. The radial flow principle reduces steam velocity through the tube nest thus eliminating tube vibrations; gives the shortest steam path and hence the smallest pressure drop; gives greater capacity for the same cooling surface; the condensate temperature is approximately the same as the vacuum temperature; and a condenser deaerating feature can be provided for high pressure steam installations.

Another feature of the new marine condenser is the use of electric welded sheet steel shell to reduce weight and cost. All Westinghouse condensers built in the last five years have been of welded steel, and the advantages of the design have been demonstrated in actual service.

Wherever possible the condenser is located beneath the turbine because it reduces cost and simplifies installation at the shipyard. Thus the exhaust trunk is eliminated making fewer joints and reducing the possibility of air leakage. An important factor is the reduction in pressure drop between turbine and condenser; and perfect turbine drainage is assured. There is also a considerable reduction of foundation weight and installation cost for a complete turbine and condenser unit.

Single pass condensers have been installed and used with success on tugboats, dredges, and naval vessels. In this connection a high efficiency scoop has been developed allowing maximum flow of water with minimum resistance loss.

Other advances made in connection with marine condenser practice, include the application of the Westinghouse propeller type circulating pump. This type of pump because of its simplicity and small space requirements lends itself well to the new arrangement of condensers and auxiliaries, introduced by Westinghouse as the simplified condensing installation. The new system also calls for the substitution of motor driven condensate pumps and modern air ejectors for obsolete wet air pumps.

Electric Baggage Truck

A NEW electric truck especially developed by the Yale & Towne Mfg. Co. Philadelphia, for railroad terminal transfer service would be equally serviceable for handling baggage and other light parcels on steamship passenger terminals. It has already been adopted by one of the largest railroads for service at one of its busiest terminals.

Due to its efficient double reduction, spur geared drive, the new truck is quiet in operation. It is powerful and possesses the snap required for climbing the grades and ramps often found at modern terminals. Safety is one of the features of the design. Double end control is provided with the standard Yale interlocking type controller giving four speeds in either direction. The controller is interlocked with the brake pedal in such a way that it must be in neutral position with the brake released before driving power can be obtained.

One-piece spring folding operator's platforms are fitted at either end of the truck. Heavy rubber bumpers and automatic couplers are also provided at either end for hauling trailers. This unit has a rugged wrought metal, electric welded frame, spur gear power axle, 27-inch diameter quickly demountable wheels mounted on Timken tapered roller bearings, and the Yale safety controller.

For severe grades the Yale electric dynamic brake can be furnished. This electric brake provides four stops of dynamic braking independent of the mechanical brake.

The Lorain, O., plant of the American Ship Building Co. is carrying on major repairs to the steamer WILLIS L. KING of the Interstate Steamship Co. This vessel was in a collision with the GEORGE DIXSON in the St. Clair river. Considerable damage was done to the bow of the KING. The other vessel, the GEORGE DIXSON, is making repairs at Detroit.

British Company Develops New Type of Winch

THE well known British manufacturer of ship's deck auxiliaries, Clarke Chapman & Co. Ltd., Gateshead, England, is reported by the *Shipbuilder and Marine Engine Builder* to be the sole manufacturer of a new patent winch and derrick system which promises to make revolutionary savings in the time and labor required to handle cargo.

This system includes a special three-drum winch which can be operated by one man enabling him to have complete and simultaneous control of the slewing, lifting and topping motions.

The winchman has all the controls within reach, and can lower the hook, adjust the height of the derrick by the topping lift to the actual position of the load, wind in, swing the derrick outboard or inboard, and adjust the height again before lowering to the required position. There is no slack in the gear, whether the ship is on even keel or in a heavy sea. A roll has little effect.

Will Double the Capacity

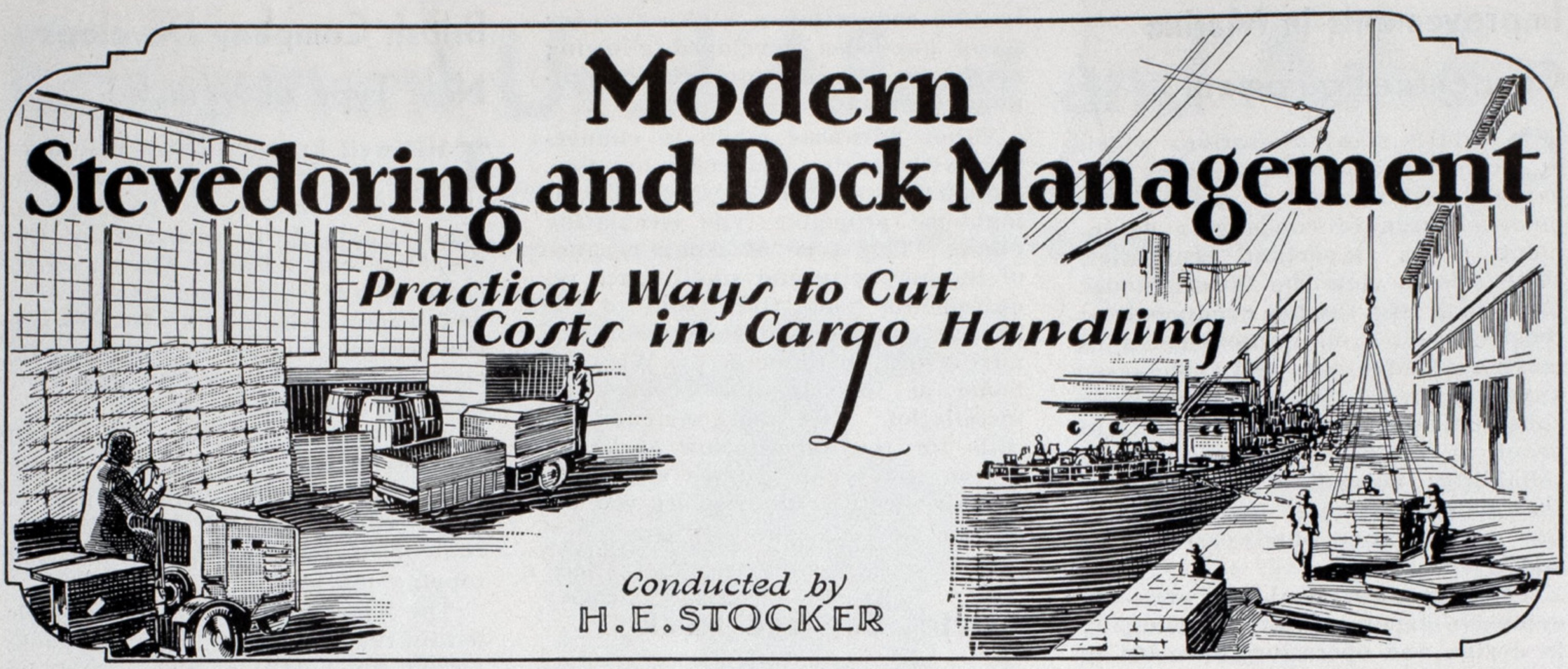
It is claimed that all the advantages of a double winch and derricks are obtained, without the attendant disadvantages such as bumping of the load, and the rearrangement of the gear necessary in loading on different sides of the ship. The new gear should appeal, not only to shipowners, but also to the men who actually work it, as it is designed from the points of view of the cargo workers.

Another advantage is that there is no rigging or unrigging of the derricks as the gear is always taut and out of the way. The cargo whip can be left on the drums when warping, which is a convenience when leaving port or shifting ship.

The gear should offer an excellent proposition in the handling of coal or other loose cargoes by means of a grab, as the grab can be worked progressively over the entire face of the coal in the hatch area, instead of digging a hole and then causing a stoppage of work while the trim of the derrick is being altered.

In new tonnage, not only can half the derricks be dispensed with, but owners can reduce their usual winch power by half, or get greater utility out of their present standard with less wear.

The advantage claimed for this new cargo handling device may be briefly summarized as affording a saving in labor, saving in time of loading and unloading, and safe handling of fragile cargoes, due to the perfect and simultaneous control which the winchman has over all the motions of this load.



Planning Cargo Handling Operations Will Reduce Stevedoring Costs

By Emmett Johnson Jr.

GENERALLY speaking a terminal operation proceeds step by step and with little advance planning of the operation as a whole. As the loading of the ship progresses, changes are made as found necessary by conditions encountered or as the stevedore boss or a foreman may think advisable. Changes are frequently made in certain details such as the number of men working a lighter, without any consideration of the effect of such change on another part of the operation. Finally, after a great deal of change, confusion, lost motion and wasted money, the operation begins to work with a fair degree of effectiveness.

A similar condition frequently exists in a discharging operation. Ships would be dispatched quicker and the cargo handled more economically if the operation were planned in advance in detail. This planning should be done by someone familiar with conditions at both loading and discharging terminals and in the cargo holds during the voyage. This man should also be capable of making a thorough analysis—something which is not characteristic of some men in charge of important cargo handling operations.

Careful planning of tractor trailer operations in advance avoids confusion, lost motion and high costs

Thorough analysis and planning requires putting plans down on paper. When one starts to describe something of this character in writing, one always finds certain points overlooked previously. Diagrams of the operation planned are particularly helpful.

Study Each Operation

Following this method, every detail of the operation and equipment used is studied and comparisons are made with previous voyages. As the operation proceeds, changes are made because a general cargo handling operation is so complex and conditions change so frequently. However, few business plans go through without some change and experience in other parts of the shipping business and in other materials handling operations show that planning in advance and changing the plans as the work progresses is the best way to lowest costs.

In a sideport operation the diagrams mentioned should show the outline of the terminal, the dimensions of the terminal, location of cut gangways, gangplanks and the space alloted for the various classes of cargo, also proposed location of lighters. Other diagrams of the ship's deck should show sideports, hatches, elevators, stanchions, ventilators; also lighters on the offshore side.

On all these diagrams lines should show the proposed movements of trac-

tor trailer trains and other cargo movements between terminal and ship.

In working out the plan of operation the stevedore would consider details such as the grade up which trailers would have to be moved due to the sheer of the deck. Movement of trailers up this grade by hand, an uneconomical operation, should be avoided by planning tractor movement so that this hand work can be done by the tractors.

Returning Empty Trailers

The plan would cover the best route of returning empty trailers between the ship and the terminal because taking care of empties is often a difficult problem. In planning these movements, consideration would be given to interference with other movements and changes would be made in one or more movements as necessary. The various cargo piles on the pier for each port would be planned for the most advantageous handling into the ship both as to the location of the piles and their probable size.

In planning a discharging operation, consideration should be given to the trim of the ship on arrival, location of various separation piles with respect to stowage in the ship.

In one known operation the ships are discharged at the inner end of the pier, shifted when empty to the outer end of the pier and loaded from this point. During the morning all less than carload freight received on the bulkhead is loaded onto lighters which are later shifted either to the outside sideport or to the other side of the pier if other heavier loaded lighters are expected during the afternoon. This eliminates the interference of trailer trains and trucks passing through the discharging operation to reach the end of the pier, and also to a great extent the general cargo piles at the end of the pier, as only full or nearly full truck loads are allowed down the pier.

After the discharging operation is completed and the general cargo lighters are shifted, the cargo arriving during the afternoon is loaded on trailers at the bulkhead receiving platform; only cargo for one discharging point being placed on each trailer. Consequently, during the entire afternoon these trailers are being towed down the pier in trains of from five to ten trailers. Although the freight on each trailer is separated, the trailers are mixed.

A diagram should provide a breakup station placed where the general cargo piles were and also to the left of the entire operation, because it is inadvisable to have a tractor take more than two trailers into a crowded ship's deck. At the breakup point the longer trains should be broken up into small trains and although this means some delay, the overall result is better than when this practice is not followed. Where the long trains go into the deck, the operation has the appearance of being very effective, but the economy of long trailer trains is offset by the increased confusion in the ship.

A separate group of tractors should haul the trains into the ship allowing the other tractors to return to the bulkhead.

By making diagrams for each operation and each movement in the operation, these points are brought out and are much easier to explain to the men. By having the key men study these diagrams, especially the tractor drivers, then placing a regular man at each station, they will become familiar with the operation and more efficient than when just any man is taken and put on the job.

Each diagram should be gone over again and again, and also again after it is put into operation to straighten any defects that might be found. Each man's work should be written out for him and the tractor drivers should be required to follow the imaginary trackage lines as shown on the diagrams. This would take some time, however, by being able to show the men wherein their work fitted with the other men's work and the entire operation in picture form it would help them considerably to grasp the idea.

Training of the Men

The training of the men referred to above, could be concentrated advantageously on the regular gangs. Then one man from each heading the gang operation could be used as a nucleus for extra gangs. That is, have two trailer loaders working with two regular men handling the trailers with the tractor driver and another two regular men for the discharging of the trailers. Therein would lie the flexibility so desirable in a stevedoring operation.

It would be well to definitely arrange gangs, when possible, to work together, shifting the entire gang when needed. Otherwise when starting another truck or lighter and using just any trucker who might be at hand, it would be found that there were too many men who would be left loading trailers. They would be idle part of the time waiting on the few truckers that were left.

The number of men required for any particular operation would become known with the aid of the diagrams, time movement studies and experiment.

When working out a plan of operation such as described, it is advisable to do considerable experimenting rather than be guided too much by previous practices. Studies should be made of other operations to avoid repeating mistakes made by others and to speed the development of the most economical plan of operation. How much easier and more effective is this calm and considered planning than that done during the heat of action amid the noise and confusion of the usual pier operation?

Large Increase in Trade At Port Los Angeles

An indication of the upward trend of business is the fact that the commerce of Los Angeles harbor reached the highest point in July that it has touched in 16 months and has been equalled only once since 1931.

Cargoes to the value of more than $73,000,000 passed over the wharves of Los Angeles harbor, compared with the low point of $45,659,809 in February last. These gains were accounted for primarily by foreign and intercoastal trade.

Exports to other countries increased more than 100,000 tons in volume and $1,400,000 in value, over July of last year, a gain of 38 per cent; while imports were up more than $1,000,000 over the same month of a year ago, a gain of nearly 60 per cent. This was the highest point for imports since 1931, and only once before in more than a year have exports passed the $5,000,000 mark.

Intercoastal trade, which has been at an exceedingly low ebb up to sixty days ago, made still further gains. Shipments to the Atlantic seaboard increased from $7,900,000 in July of last year to more than $11,500,000 in the month just closed. Receipts of eastern goods also increased from $17,925,000 in July of last year to $26,750,000 in July, 1933.

Coastwise trade and also business in Hawaii were not far different from what they were a year ago.

It is a notable fact that the gains recorded in foreign and intercoastal trade were very largely made up of general merchandise, oil shipments being less than they were a year ago.

Lumber receipts during July were a little more than double those of July a year ago and approximately the same as in June, which month saw a very large increase over the preceding months. Although the low point in lumber receipts was reached in February of this year, when only 18,000,000 board feet were received, the total receipts for the first seven months of 1933 have aggregated 252,000,000 board feet, compared with 207,000,000 for the first seven months of 1932.

Westinghouse Under Code

F. A. Merrick, president of the Westinghouse Electric & Mfg. Co., has issued the following statement regarding the company's participation in the national recovery act:

"All works and offices of the Westinghouse Electric & Mfg. Co. and subsidiaries will, from Aug. 15, operate under the provisions of the national recovery act which at that date becomes effective for the electrical manufacturing industry as set out in the code of the National Electrical Manufacturers association approved by President Roosevelt."

Improve your Cargo Handling by Closer Co-operation

ALL steamship owners and operators will recognize the force of the following remarks made by Mark Colby, president of the Colby Steel & Engineering Co., Seattle, before the nineteenth convention of Pacific and Far East ports:

My first suggestion to steamship people would be to work more closely with the engineering department of the various port bodies, with whom they are doing business and also to secure the assistance and advice of a man or company who has had experience in cargo handling problems and the selection and installation of suitable mechanical equipment to assist, speed up, and make safer the labor of the longshoremen and stevedores. The responsible men in your operating department cannot spare the time to make the necessary studies, trips and investigations which this work requires.

The engineers for various port authorities and the consultants whom you would retain in these cargo handling problems, both aboard ship and on the docks, meet many varying problems and many men and hence, have a fund of experience and information that you could avail yourself of. The port officials want your business and want to satisfy you and furnish any and all facilities that will tend to modernize your equipment and to help you in all your problems clear through from the hold of the ship to the tail gate delivery and in eliminating truck congestion on your docks. We all know that you are paying valuable dock space for a parking place or highway for motor trucks which could be used to much better advantage by yourselves.

Increased Handling, More Cost

I offer one formula that is well worth while to remember, "Every time you handle a piece of cargo, it adds to its cost, but does not increase its value."

In my experience I have visited most of the important ports in North America, both in Canada and in the United States, on the Atlantic seaboard as well as on the Pacific and including the Mississippi valley, and I have seen many cases where if the steamship owner, operator, or agent had discussed more freely his problems with the port officials and men conversant with cargo and material handling, they would have had infinitely better operation and at no more capital investment.

Unfortunately, the general rule seems to be, build the ship for an economical power plant, give the passengers everything they want and then some more, and then as to cargo handling, both ashore and afloat,

"Oh, let the operating department and the stevedores fight that, we have given them a wonderful ship."

On behalf of the port official and the engineering staff, they design as best they can. The steamship people seem to think their problems to a great extent should be more or less a secret, while on the other hand if the steamship men discussed more freely with the parties I have mentioned above, their problems and their hopes of bettering them, I am sure that every port official on the North American continent would welcome them with open arms.

The port officials cannot do it alone, neither can the steamship companies. The problem is one that requires careful thought and study and not a hurried hit or miss answer. There is no reason why very definite and radical improvements could not be made in cargo handling, both on the dock and in the vessel, reducing damage claims and saving lay time and overtime. It has been done in other industries, why not in the shipping business.

How Profits are Lost

After spending both time and money to secure the business of transporting cargo, why drop what you hope might be a reasonable black figure for a certain red one by useless and expensive handling methods and antiquated methods of checking and control, which in the last analysis means high stevedoring cost, overtime and needless 'lay-time' for the vessel.

The seriousness of cargo handling on a ship and to and from the dock is becoming recognized. I contend if the fellows on the firing line were given the opportunity of expressing their views when the vessel was laid down either for building, remodeling or when docks were to be built, or changed, and were permitted to talk more freely with their head officials and with the port engineers, you would soon see improvements and real economies effected. Again I say that this could be accomplished with little more or the same original capital investment, if the work were planned out in advance to some extent. This need is becoming recognized by naval architects and shipbuilders. For many years they designed a vessel for economical cost and seaworthiness, enabling them to get a good insurance rate, on the theory, "I will make my end safe and let the other fellow solve his own problems." Hence, there is very little improvement in cargo handling as a whole.

In the issue of *World Ports*, May 1928, there was a tabulation published prepared by Sir Frederick W. Lewis. I only quote two or three of the outstanding items. Based upon a one year's operation, 36 days freight earnings absorbed by port charges; 46 days freight earnings absorbed by wages, 35 days freight earnings absorbed by repairs, maintenance, commission, brokerage and advertising; 115 days freight earnings absorbed by stevedoring costs. According to Sir Lewis' conclusions 41.3 per cent of the total freight earnings were absorbed by stevedoring charges.

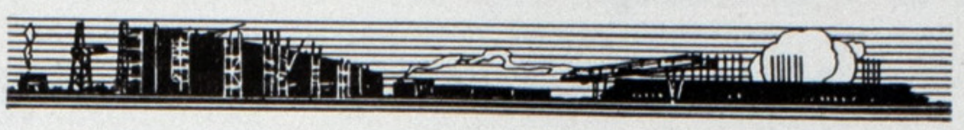
Facing Actual Conditions

Along the lines intimated in Mr. McPherson's paper, although he did not make a direct statement, I offer the suggestion that the executives in the so-called big office could do much to correct these cargo handling troubles if they would set aside one day at reasonably frequent periods, taking a day when things are really moving on the dock, and spend that day out on the job, watching the men work, talk with the checker, stevedore, foreman, and others. You are bound to get ideas worth while. Get the other fellow discussing his ideas. If you get three good thoughts out of ten suggestions you are making progress. I am confident that an intimate acquaintance of this nature by the head officials would enable them to better understand and have a more sympathetic view with the men actually on the job when improvements or alterations are suggested or requested.

Listen to the young chaps who are breaking into the game. Let the older man give them a hand for the young fellows have vision and some real ideas. Don't let seniority or the respect one has for years of service crush their initiative. A mistake made in trying to improve or remedy a condition is really an advance and that is what you are working for.

Ralph T. Johns, formerly Pacific coast director of the shipping board and Robert C. Hill have organized the Overseas Transport and Shipping Co. Inc., with offices in the American Bank building, Seattle, Wash. The new company is to do a chartering and ship brokerage business. Both men have had wide experience and are well known in shipping circles in the Northwest. The new company has connections in London and in the Orient, as well as in the principal American ports.

Useful Hints on Cargo Handling



THE "Amsterdam type" lumber carrier, special features of which are protected by patent rights pending by the Netherland Shipbuilding Co., Ltd. in conjunction with one of the largest Dutch lumber companies, has been constructed with one cargo hold only. The six hatches are practically as large as the hold which is a great advantage in loading and discharging because direct movement of the sling load is made possible.

Owing to its special form the carrying capacity of this type is unusually large compared with the weight of the hull and is considerably larger than for the ordinary vessel constructed for handling lumber. The stability of the new type is so good that it is not necessary to have water ballast in the double bottom tanks when a deckload is carried.

A large water ballast capacity gives this vessel a fair draft in ballast. As the propeller is of small diameter, it is well submerged in this condition and the speed obtained is good. The tanks at the sides help to raise the center of gravity in ballast condition and consequently the vessel is easier in a seaway than most existing lumber carriers.

The vessel, with machinery aft, has been designed as a motorship and in all respects meets the requirements of the Dutch steamboat inspection.

Amsterdam Type Lumber Carrier

Length, feet, inches	233-0	258-0
Beam molded, feet, inches	38-2½	43-0
Depth (loadline rules) ft. in.	20-3	22-3
Gross tons	1785	2290
Net tons	900	1230
Deadweight, tons	2530	3400
Speed, in knots	9.5	10
Brake Horsepower	750	900
Winches, number of	6	8
Water ballast, tons	746	884
Diesel fuel, tons per day	2.7	3.2

Instead of six common derricks the vessel can be equipped with three special derricks built according to the MacFarlane patent. These special derricks are so arranged that each one can be topped, swung, hoisted and lowered by one man. They may, therefore, be compared in effectiveness to three cranes. By this arrangement each corner of the hatch can be reached without difficulty.

In the next issue a description will be given of a new rigging for ships which clears decks for cargo, and for handling long pieces of cargo, and gives a more flexible use of the booms. The present rigging is an inheritance of sailing ship days, and is not adequately suited to present day conditions.

THIS page is being devoted to short items on all matters having to do with the more efficient turn-around of ships. These items are intended to be of a helpful nature.

We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.

Making Work Still Harder

POORLY designed gangplanks are a frequent source of trouble in sideport operations. The writer has seen men who were completely fatigued after many hours of hard work, striving to push a heavily loaded trailer or hand truck over a steep "brow." Because they were slow in getting the load over, the foreman cursed them unmercifully. A management which uses such poor gangplanks and which drives tired men to force loads over them is far out of touch with developments of modern business.

First, a design of gangplanks is available which reduces the difficulty of getting loads over them to a minimum, second modern industry has proved that an intelligent, scientific labor policy pays dividends.

Poor Design Affects Cost

LACK of proper attention to cargo handling resulted in a ship being designed so that when she was bunkering from an oil barge it was impossible to work two hatches. This frequently causes delay and overtime expense for stevedores.

A large steamer was designed so that it took 60 hours longer to discharge one of the holds than any of the other holds. This ship was designed by naval architects who refused to give consideration to the recommendation of the operating men who were to use the ship.

A mistake in design of cargo handling features of a ship may and frequently does continue through the whole life of the ship, constituting a burden which in some cases have made ships unprofitable, during their entire service.

Bales of gunny bags should be stowed so that the bags are flat rather than on edge. When the bags are stowed on edge water on the deck or tanktops damages all the bags in each bale while only a few bags are damaged when the bags are stowed flat.

To Build Modern Pier

THE Pennsylvania railroad has awarded a contract to Sinclair & Grigg of Philadelphia for a new pier at Baltimore. This pier will replace the three piers destroyed by fire during July, 1932. The new pier will accommodate seven average size vessels. It will be 930 feet long by 223 feet wide.

There will be two floors and five railroad tracks, two depressed tracks in the center of the pier, two surface tracks on the south side and one on the north side.

Although pure science, business and technical research is important, today we need to emphasize more than ever that which can be transformed quickly into profit.

Platforms on Trailers

IN order to reduce trucking distances when discharging coffee a stevedore placed platforms on trailers with a height of approximately 5 feet above the trailer platform. The slingloads of coffee are dropped on this platform and hauled to the shed by a tractor. In the shed the men back up to the platform and place the bags of coffee on their shoulders, then carry the bags to the proper pile.

Typing is facilitated in a receiving office by having checkers call the information for the typist when they are not occupied checking cargo. Spare time of checkers can also be utilized when operating department offices are at the pier, in filing and other clerical work.

Up and Down the Great Lakes

Freight Movement Increases—Large Ore Shipments—Lake Levels—Many Ships Enter Service—Coal Movement Heavy

TOTAL traffic through the United States and Canadian locks at Sault Ste. Marie canals during July was 70 per cent heavier than during June, and over twice the tonnage for July, 1932. The total traffic amounted to 6,050,248 tons, as compared with 2,637,538 tons for the month of July, 1932. The movement of iron ore increased to 3,461,141 tons, as compared with 617,084 tons for the month of July, 1932. Soft coal increased to 1,497,312 tons, as compared with 847,038 tons for the month of July, 1932. There was, however, a decrease in the movement of grain. The wheat movement for July was 17,391,388 bushels, as compared with 25,013,804 bushels for the month of July, 1932.

Shipments through the Welland ship canal showed an increase both for the month of July this year, as compared with July, 1932, and in the total for the season up to July 31. The total traffic for July this year was 1,121,302 tons, an increase of 89,580 tons for the month of July, 1932. Total traffic through the Welland canal for the present season to July 31 was 4,057,041 tons which is an increase over last year's total to the same date of 459,245 tons. Shipments of barley for the month of July showed a decrease by 25,776 tons; rye by 37,776 tons; wheat by 115,916 tons; and eleven other commodities by lesser amounts, compared with July last year. However, all of these decreases were more than offset by increases of 159,893 tons of soft coal, 28,725 tons of iron ore, 20,795 tons of sugar, 54,128 tons of merchandise, and in other commodities.

Total traffic using the St. Lawrence canals during July amounted to 839,243 tons, as against 817,640 tons for July last year. All grains except corn showed decreases, but hard and soft coal, iron ore, pulpwood, merchandise, sugar, flour and a majority of other commodities increased. For the season, April 14 to July 31, the total traffic amounted to 2,877,453 tons.

Ore Shipments Increase

During July shipments of ore from upper lake ports amounted to 3,430,785 tons as compared with 639,884 tons for the month of July, 1932. Up to Aug. 1, 1933, a total of 5,695,798 tons of ore were shipped from upper lake ports as compared with 1,020,340 tons up to Aug. 1 a year ago. Balance of ore on docks at Lake Erie ports on Aug. 1, 1933 amounted to 4,792,192 tons, as compared with 5,298,383 tons Aug. 1, 1932.

The very large increase in ore movement this year up to Aug. 1 over the same period a year ago, amounting to 4,667,458 tons, is likely to continue according to present indication as the season moves on. The total estimated amount of ore to be brought down for the entire season is now nearer 30,000,000 tons than 20,000,000. If this estimate proves correct, it will mean a somewhat greater movement than that for the year 1931.

July Lake Levels

The United States Lake survey reports the monthly mean stages of the Great Lakes for the month of July as follows:

Lakes	Feet above mean sea level
Superior	602.81
Michigan-Huron	578.74
St. Clair	574.59
Erie	571.78
Ontario	245.17

Lake Superior was 0.18 foot higher than in June and it was 0.13 foot higher than the July stage of a year ago.

Lakes Michigan-Huron were 0.02 foot higher than in June and 0.10 foot higher than the July stage of a year ago.

Lake Erie was 0.26 foot lower than in June and it was 0.04 foot higher than the July stage of a year ago.

Lake Ontario was 0.28 foot lower than in June and it was 0.73 foot lower than the July stage of a year ago, 1.11 feet below the average stage of July of the last ten years.

Many Ships Enter Service Nearly 70% Engaged

Commissioning of additional bulk carriers in the Great Lakes shipping trade has continued during the past month to the point where as of Aug. 15, 65.76 per cent, or 217 out of a total of 330 vessels, were then in service, according to a statement compiled by A. B. Kern of the M. A. Hanna Co. Of these 217 vessels, 185 are engaged in the ore trade. The increase in shipping has been extraordinary. Since July 15 no less than 53 additional vessels have entered service. Within this period no less than 69 additional vessels have found employment in the ore trade.

Comparisons with a month ago (July 15, 1933) and a year ago (Aug. 1, 1932), show graphically how a new and vigorous life has been infused into the cargo carrying trade on the Great Lakes. On Aug. 15, 1933, out of the 2,763,000 tons of trip capacity of the 330 vessels listed, 1,895,100 tons or 68.59 per cent representing 217 vessels were in commission. On July 15, 1933, 1,432,900 tons or 51.86 per cent representing 164 vessels were in commission, while on Aug. 1, 1933, only 638,900 tons, or 22.98 per cent representing 76 out of the possible 330 vessels were in commission. At that time only 17 of the 76 vessels were engaged in the ore trade.

The number of vessels and the percentage of each fleet for several of the companies engaged in the lake bulk trade, as of Aug. 15 are as follows:

Pittsburgh Steamship Co., out of a total of 86 vessels, had 82.56 per cent or 71 vessels in commission; all engaged in the ore trade. The Interlake Steamship Co., out of 49 vessels had 46.94 per cent of its fleet, or 23 vessels, in service; 21 of these in the ore trade. Out of 19 vessels Hutchinson & Co. had 10 or 52.63 per cent in commission; all in the ore trade. The Cleveland-Cliffs Co. had every one of its 21 vessels in service; all in the ore trade. The Bethlehem Transportation Co. had 13 of its 16 vessels in commission; 9 of these in the ore trade. Boland & Cornelius, out of 13 vessels, had 9 in commission; one of these in the ore trade. The Great Lakes Steamship Co. had 6 in commission out of a total of 19; all in the ore trade. The M. A. Hanna Co. had all 10 of its vessels engaged in the ore trade. The Columbia Transportation Co. had 6 of its 10 vessels in commission; all in the ore trade. Out of 11 vessels the Wilson Transit Co. had 5 in commission; one of these engaged in the ore trade. Reiss Steamship Co. had all 9 of its vessels in commission; 8 in the ore trade. The Valley Camp Coal Co. had 8 of its 9 vessels in commission; three of them in the ore trade Interstate Steamship Co. had all 4 of its vessels in the ore trade. Five of the 6 vessels of the Midland Steamship Co. were engaged in the ore trade.

General Electric Increases Employment Under Code

The code for the national electrical manufacturing industry, in accordance with the President's approval, went into effect Aug. 15. Gerard Swope, president of the General Electric Co., after a meeting of the company executives at Bridgeport, Conn., Aug. 14, said that the company had anticipated the acceptance date by one week, and that as far as hours and wages were concerned all changes were effective as of Aug. 7.

No one under 16 years of age has been employed, so there is no necessity to make any eliminations, Mr. Swope said. The hours have been decreased in accordance with the code to 36 hours a week in the shops and 40 hours a week in the offices. The 40-hour week in the offices has been in effect since April, 1931. All wages and salaries have been increased where necessary to reach the minimum, and equitable adjustments in other salaries have been made.

As far as the General Electric Co. is concerned, the total amount of such increases is at the rate of $8,000,000 per year, affecting more than 42,000 employes, including almost 2000 additional employes immediately put to work, Mr. Swope said.

Empress Sets New Record

On Aug. 10 the liner EMPRESS OF BRITAIN of the Canadian Pacific Steamship lines broke her own eastbound record for the transatlantic crossing. She picked up her pilot at Cherbourg 4 days 7 hours and 32 minutes after leaving Farther point, Quebec. This is 26 minutes faster than her old record made in June, 1932. The EMPRESS sailed from Quebec, Aug. 5 and dropped her pilot at Farther point at 9:55 p. m. She picked up the Cherbourg harbor pilot at 10:27 a. m., Aug. 10.

Weld Diesel Engine Frame

Lukenweld Inc., division of Lukens Steel Co., Coatesville, Pa., has been awarded the contract by Winton Engine Corp., Cleveland, for the manufacture, in arc welded rolled steel construction, of the complete engine structure for the 600-horsepower Winton diesel engine which will power the new 110-mile an hour light weight passenger train of the Union Pacific.

The engine parts to be built by welding consist of the engine frame proper, the oil pan and twelve cylinder heads. The engine will be a V-type, twin six unit, direct-coupled to a generator, which in turn will supply power to the driving motors and thence to the axles.

The highly-stressed engine frame proper will be constructed of a new high strength alloy steel, welded by a new welding technique which deposits weld metal with characteristics equal to the high strength base metal. The entire engine frame will be subjected to a radiographic examination by means of radium as an inspection check to insure quality of welds.

Sidney E. Morse for many years secretary of the Transatlantic Passenger conference, has retired because of ill health. Joseph Mayper and Hege D. Terrell have been named secretary and assistant secretary, respectively, to take over the duties relinquished by Mr. Morse.

Winthrop W. Aldrich, president of the Chase National bank, was elected as director of the Westinghouse Electric & Mfg. Co., at a recent meeting of the board.

Coal Movement Heavy

Coal shipments from Lake Erie ports between the middle of July and middle of August averaged over 1,000,000 tons per week. The total movement for the present season up to Aug. 14 amounted to 15,605,985 tons, as compared with 10,206,059 tons for the corresponding period of 1932.

In addition to cargo coal, vessels also moved greater quantities of bunker coal, bringing the total for the season to Aug. 14 up to 443,129 tons as compared with 252,410 tons for the corresponding period in 1932.

The total coal movement, cargo and bunkers, for the season 1933 to Aug. 14 was 16,049,114 tons as compared with 10,458,469 tons for the corresponding period of 1932, and 16,229,314 tons for the same period in the season of 1931. In other words, the movement of bituminous coal on the lakes this year is over 50 per cent greater than a year ago and is but sligtly below the movement two years ago. The remainder of the season may show an increase over the same period of two years ago.

Announcement has been made by Rudolph L. Zimpel, of the discontinuance of the *Commerce Bulletin*, published by the Port of New York Authority, of which he had been editor; also that he will carry on the function of the bulletin by issuing a publication to be called the *New York Port Journal*. Mr. Zimpel has severed his connection with the Port of New York Authority and the first issue of the new publication will make its appearance on Sept. 15. It will follow practically the same lines as the former bulletin and will be distributed to a selected request list as formerly.

Boston Wants Its Share of Harbor Improvements

The Maritime association of the Boston chamber of commerce through its manager, Frank S. Davis, has requested the governor of Massachusetts, the mayor of Boston, the New England senators and congressmen and all business organizations identified with maritime activities in that section to vigorously protest any action of the public works administration in Washington, under the jurisdiction of Secretary Ickes, toward throwing out the New England rivers and harbors improvement projects that have been definitely recommended in the report of the army engineers now before the public works administration.

Included in the recommendation of the army engineers is a 40 feet deep harbor channel up to the navy yard, increasing the anchorage area and deepening and widening Weymouth Fore river.

Attention is called in Mr. Davis' letter to the authorities, to the small amount appropriated by the federal government in recent years for rivers and harbors improvements in this section compared with federal expenditures for similar work in other parts of the country, especially in New York, Baltimore and Philadelphia. He also pointed out that local contributions for such work in New England have been substantially greater than elsewhere, giving as an example that the federal government's expenditures in Boston harbor in all time have amounted to only $13,000,000, whereas the commonwealth of Massachusetts in the period from 1859 to 1931 inclusive, expended more than $23,000,000 in improvements and developments in the harbor.

Todd Seattle Yard Busy

As this is written no action has yet been taken on the award of a contract to elaborately rebuild the Dollar liner, PRESIDENT MADISON. The estimated amount involved is $1,000,000.

The Todd Drydocks Inc., Seattle, who entered a bid of $998,558 for repairing the PRESIDENT MADISON has had considerable major repair work to do. The H. F. ALEXANDER is undergoing elaborate repairs in this yard at a cost of about $250,000. The repairs on the S. S. NORTHWESTERN are running up to about $100,000 and a job on the steamer CRICKET is estimated at $50,000. All of these vessels, it is reported, were damaged in recent strandings.

Toward the end of July the Marietta Mfg. Co., Point Pleasant, W. Va., commenced actual work on two large powerful steel self-propelled steam dredges for the United States Engineers.

Reviews of Late Books

Selected Welded Constructions, Vol. 5, Shipbuilding (Ausgewhalte Schweisskonstruktionen. Bd. (5. Schiffbau); compiled by Lottman. Collected and edited by the welding committee of the Association of German engineers (Fachausschuss fur Schweisstechnik im Verein deutscher Ingenieure); Berlin 1933, VDI—Verlag GMBH; 8 pages of text, 14½ x 8¼ inches, and 50 plates of illustration with German and English explanatory remarks; cloth cover with sliding clamp back; supplied by MARINE REVIEW, and in Europe by the Penton Publishing Co. Ltd., Caxton House, London.

Welding offers the signal advantage of enabling constructional work to be produced better and at lesser cost than by the hitherto known working methods. Among the special advantages gained by the application of welding are such features as greater strength, lower weight, better tightness, greater resistance to corrosion, and the possibility of obtaining smoother surfaces.

The advantages of welding have of late been recognized in a growing measure by shipbuilders; as a matter of fact, the application of welding in shipbuilding has reached a high level. Still, only comparatively few engineers have been in touch with these developments and are familiar with the methods of construction. The present volume entitled "Shipbuilding" of the "Selected Welded Constructions" series now offers all engineers the possibility to learn from the experiences thus far gained, and thereby places them in a position to take full advantage of this new method of construction. Its peculiar features make it necessary to adopt new designs and methods of assemblage. Only where these two requirements are being considered in a way that in every respect corresponds to welding needs, can it be expected that this method of construction will show its inherent superiority.

The examples showing how welding is applied to the hull construction of large seagoing ships will be of special interest. The thorough-going application of welding, however, has been less handicapped in the case of river craft and special vessels, and of accessories for seagoing ships, than in the construction of the seagoing ships themselves. As we are still in the midst of this development, the examples taken from the construction of river craft and from some special branches of shipbuilding make up a comparatively large section of the book.

The progress of shipbuilding from the riveted to the welded design may perhaps be compared to that made about 80 years ago, when the steel ship replaced the wooden ship. Just as in those days, it will now be necessary that designers and builders of ships acquaint themselves with the special features of the new method of construction. The present work, which has been compiled by a welding expert of many years' experience in shipbuilding will be a valuable aid to them.

Curs de Navigalie Fluviala si Maritima (A Course in River and Marine Transportation), by George Popescu, inspector general of ports and waterways of Rumania, professor at the Polytechnic college, University of Bucharest; in the Rumanian language; in three volumes; 618 pages, 280 drawings; published by Tipografia Vremea, Strada Carol, 10, Bucharest, Rumania, 1932; supplied by MARINE REVIEW, and in Europe by the Penton Publishing Co. Ltd., Caxton House, London.

Review by R. S. MacElwee, Ph. D.

This work is a thorough examination of the various engineering works necessary to inland and marine commerce. The reviewer gained a high regard for the engineering ability and practical experience of the author while delegate to the International Navigation congress at Cairo in December, 1925, both sitting upon a subcommittee concerning port possibilities for petroleum products. There were many conversations aboard the "Imperitul Trian" of the Rumanian national merchant marine between Alexandria and Constanza and many more conferences during the time the reviewer was making a survey and study of the ports of Rumania. Professor Popescu's successor, Mr. Vardela, now director of the ports and waterways of Rumania, was the third member of these conferences and inspections.

The ports these gentlemen have built for Rumania and the river improvements, especially the bank protection and corrections of the Danube, indicate visibly the high professional knowledge and technical skill of these public engineering officials in solving the ports and river problems of their country.

Professor Popescu's book covers the usual topics and their subdivisions of the general subject matter of inland waterways.

It begins with the general principles of stream flows and the characteristics of the principal waterways of Rumania. Then follows a technical discussion of river hydraulics, the measurement of currents and fluctuations of water levels in streams.

Chapters II and III discuss erosion, also flow of water in various channel prisms. Chapter IV deals with bulkheads and revetments with sketches showing a large number of examples of bulkheads, revetments and shore protection structures. This chapter is very full and eventually develops an equally detailed discussion of deep quay walls of harbors, discussing such walls on naturally solid subsoil foundations and upon soft and unstable subsoils. There then follows with numerous drawings, examples and discussions of many types of quay walls for deep waters, cellular gravity quay walls, solid gravity quay walls, high foundation pile and relieving platform types, etc.

Chapter IV returns to river banks and river bed control, correction and protection by wing dam and such. Naturally, most of these works cited are from the River Danube with which Dr. Popescu is most intimately familiar. This discussion, including river dredging, concludes volume one.

In volume II appears discussions on: (1) "free flowing rivers," (2) "canalized rivers," (3) "artificial canals," (4) "marine channels." There follows a considerable collection of mathematical formulae and a thorough discussion of dams, locks and slack water pool improvements of natural waterways by dams and locks similar to the improved Ohio river in the United States. This leads into a discussion of dams and locks of various types with elaborate mathematical calculations. Movable dams including types similar to those on the Mohawk river in New York on the route of the Barge canal are discussed.

There is a full description with numerous drawings of lock design, also calculations of lateral thrusts against gravity lock walls. The design of lock gates is fully considered. Lock gates of the mitre and sliding type, also various types of lock valves—stoney sector (Taintor), cylinder, butterfly, etc. Many types of locks and valves and culvert arrangements are shown. There is no difficulty in reading the drawings. *Ecluze*, lock in Rumanian is enough like *Ecluse*, French—*Secture Longitudinala* Rumanian — *Section Longitudinal*, French, to make Rumanian an easy language to follow in this work.

The first section of Volume III covers artificial canals with additional discussion of locks. The following part discusses river navigation and methods of towing on open rivers.

This volume closes with a discussion of the regulation of the Danube, especially the extensive jetties to maintain navigation through the Sulina mouth. This is the work of an international commission.

The Sulina mouth is the middle one of three mouths, the Chilia mouth to the north and St. George mouth to the south. There are many small

(*Continued on Page* 40)

Personal Sketches of Marine Men

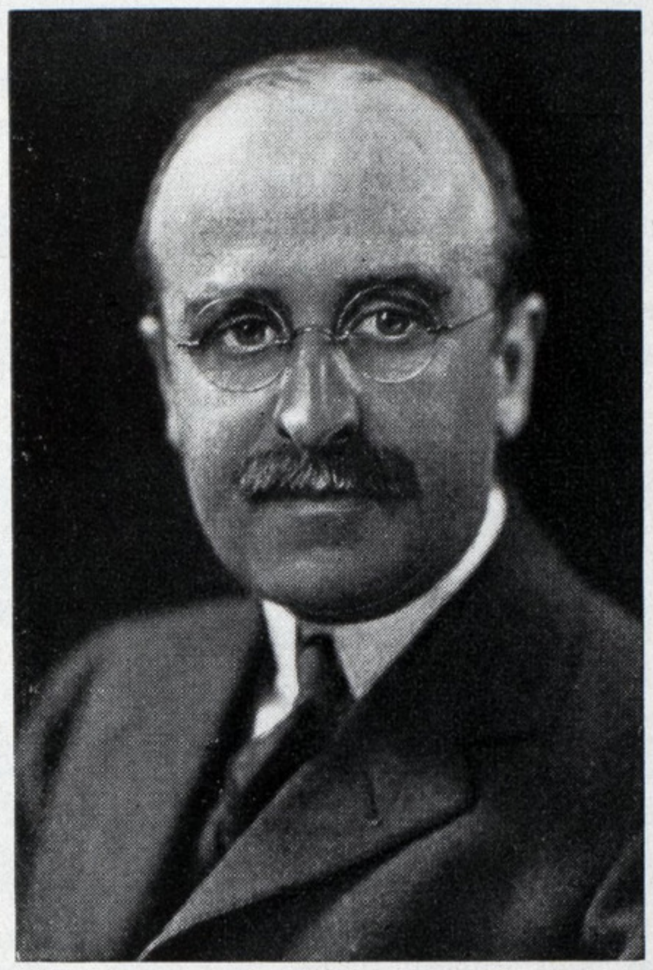
Joseph P. Grace, Chairman, W. R. Grace & Co.

By Ben K. Price

HE IS head of an organization with world wide connections as merchants, steamship owners and bankers, a pioneer in trade with South America.

THE shipping enterprises, established by his father over 75 years ago as a freight service, have under his leadership been greatly expanded.

BEGINNING his association with this organization nearly 40 years ago, he has a thorough first hand knowledge of all its varied activities.



THE title of chairman of W. R. Grace & Co., bespeaks volumes for the ability, integrity and diversified training and experience of Joseph P. Grace. A company with world-wide ramifications—merchants, steamship owners and bankers; a company with numerous subsidiaries and affiliates, with 55 branch houses in South America, Central America and the West Indies alone, with more than 140 offices and agencies throughout the world, with vast sugar plantations, cotton and woolen mills and nitrate plants, possibly eight or ten of the latter, a large fleet of modern vessels—these and other operations bear testimony to the calibre of the man who for 26 years has served as head of this organization. Parenthetically, they also bear striking testimony that this organization as possibly few others has contributed to the cordial trade relationship with the powerful nations to our south.

Established by his father, William Russell Grace, more than 75 years ago, the Grace shipping enterprises alone have been developed under the direction of Mr. Grace from a purely freight service operating to the West coast of South America by way of the Straits of Magellan, into six distinct passenger and freight services, linking the Atlantic, Gulf and Pacific coasts of the United States with the West coast of South and Central America, and operating approximately 30 vessels, of which four are the new de luxe liners, SANTA ROSA, SANTA PAULA, SANTA ELENA and SANTA LUCIA, built at an expenditure of about $20,000,000.

Born at Great Neck, Long Island, Mr. Grace began to learn the business under the tutelage of his father, while he was still a school boy. He was graduated from Columbia university, New York City, in 1894 and for a year studied law at the New York law school. He then began in earnest his association with the Grace organization. Starting at the bottom, he learned the business through its various departments and became vice president upon the death of his father in 1904, and then in 1907 succeeded Edward Eyre as president. This position he held for 22 years, until the spring of 1929, when he became chairman of the board.

The company's developments in South America are particularly notable. Indicative, for instance, are some 29,000 acres in Peru either owned, leased or controlled by its subsidiary, the Cartavio Sugar Co., and its numerous nitrate properties, employing as high as 15,000 men. The company at one time in recent years, at least, owned approximately 10 per cent of the terminal facilities along the West coast of South America.

In the further development of the company's operations, a development that has included the pioneering of air routes in South America, Mr. Grace has carried on the traditions of his father, under whose directions the firm of W. R. Grace & Co. achieved among other things the reorganization of Peru's national debt, the completion of the Oroya and other Peruvian railroads, the construction of the Trans-Andean railroad in Chile and the development of the first direct steamship line between New York and the West coast of South America by way of the Straits of Magellan.

Incidentally, it is interesting to note that when the Grace Steamship line was organized it began by chartering sailing vessels for isolated transactions. Then in 1884, William R. Grace bought out the Fabbri & Chauncey line and operated chartered vessels until 1894, when four steamers were constructed by the company.

In addition to his duties as chairman of W. R. Grace & Co., Mr. Grace is a vice president of the Ingersoll-Rand Co., a director of the National City Bank, Northern Insurance Co., and the Terminal Warehouse Co., all with headquarters in New York. He is a trustee of the New York Catholic Protectory and is affiliated with various marine associations.

He is a member of the Alpha Delta Phi fraternity, the Metropolitan, Piping Rock, Columbia University and University clubs, also the Catholic, Racquet and Tennis, and Meadow Brook clubs. He resides at Manhasset, Long Island, N. Y.

Rope and its Use

(*Continued from Page* 23)

ing; signal halliards; log and lead lines; and such things as spun-yarn, houseline, marline, etc. It is subject to a good deal of wastage, and demands on store sheets for these items should be carefully checked over. One of the principal causes of signal halliards carrying away, is that they absorb a lot of moisture and contract tremendously. A golden rule, on the first signs of rain is that signal halliards should be slacked up.

Standing rigging, that is, shrouds, back stays and fore and aft stays, should, barring accidents, last the lifetime of the ship, say from twenty to twenty-five years. If the shrouds are served, they should be blacked down at least once a year with a mixture of Stockholm tar and black paint. This gives the service a hard coating and sheds the weather. Occasionally part of the service should be stripped off and the wire examined and precautions taken as may be necessary.

Unserved wire such as back stays and fore and aft stays, should be treated once yearly with a mixture of solidified oil and black or white lead, according to one's fancy for color effect. The service on the eye splices at each end should be well looked after, and given good applications of Stockholm tar to prevent formation of rust. Rigging screws should be slacked back every three years, given a good coating of black lead and tallow and screwed up again.

All rigging, wires and rope on the mainmast, that is, abaft the funnel, should be given particular attention, as the fumes from the funnel smoke has a bad effect on them.

Keeping the Cordage Book

Every ship should have a cordage book. This should be a comprehensive record of all renewals and examinations, tests and overhauls. It should be kept up to date by the chief officer, and examined and signed once yearly by the marine superintendent. Divided into sections and appropriate columns, it should include all the important standing and running ropes and wires in the ship. It constitutes an invaluable record for a new chief officer joining the ship, and also ensures that everything is maintained in "shipshape and Bristol fashion" according to immemorial traditions of the sea.

All-welded Steel Freighter

(*Continued from Page* 18)

is provided by the center and side girders, hoppers, and the deck. Longitudinal members are stiffened by welding diagonally disposed angle bars to the members.

The 28 ballast tanks provide capacity for 600 tons of liquid cargo and 14 self-cleaning cargo bins have a total capacity of 1200 tons. In addition to this there is some package cargo space.

All welding is being done by the shielded arc process using electrodes and machines manufactured by the Lincoln Electric Co., Cleveland. The welding crew consists of 13 men operating at times on three shifts a day. One 200 ampere, one 300, two 400 and one 600 ampere capacity machines were used.

The lines of the hull, approximate sections of which are shown in an accompanying illustration, are of special interest in that they bear some resemblance to the simplified sections suggested by Capt. William McEntee, after his model experiments on shallow draft, full formed, barge type of vessel. As far as possible straight lines and arcs of circles only have been used.

If the performance of the vessel meets expectations, it is understood that the company may consider the construction of others along similar lines. It is also possible that cargoes will not be restricted to the company's own products, and that the vessel may enter the general transportation business.

The unusual design of this craft was originated by John H. Odenbach, president and general manager of the Dolomite Products Co.

Cargo winch deck on the S. S. California shortly before she went into commission. Manila topping lifts and wire rope cargo falls

Review of Late Books

(*Continued from Page* 38)

mouths between the islands of the Danube delta. There is a strong litoral current from north to south along the western shore of the Black sea which continues constantly to drift the sand into the channel. This is in addition to Danube silt. For many years the jetties have been added to and extended farther into the Black Sea. The Danube from Brailia, the last seaport upstream from Galatz, with its three months and numerous delta islands is shown on a very clear map, also sections of the river beds and of the correction jetties at the Sulina mouth.

A report to the international Danube commission is included in the book. Popescu recommends a new artificial canal between the Danube proper (above the delta) and the Black sea.

Appendix I discusses the history of the development of navigation and water transportation in Rumania during the last century. This review gives the tonnage increases by flags and a list of river shipping lines. The discussion of volume of commerce and Danube river fleets of tow boats and barges is too long for review but the totals are stupendous.

Economic Value to Rumania

There follows in conclusion a discussion of the economic value of the Danube navigation to Rumania.

Then comes a discussion of the desirability of a canal connection of modern barge dimensions between the Danube and Mosel-Rhine inland waterway systems. The old canal is too small for any practical modern barges to use effectively.

It is unfortunate that this work is not available in French and English because of the value of this contribution to the field of inland waterways.

The legions of Emperor Trianus certainly left the Latin bases for the Rumanian language of today. Anyone with a good knowledge of Latin or French or Italian can get a great amount of information out of Professor Popescu's splendid work in Rumanian by looking for the Latin roots of its language.

There has just been received another elaborate work by George Popescu entitled *Navigatima Maritima*, dealing with the construction, equipment and operation of seaports. This will be reviewed at an early date.

The Propeller club of the port of Cleveland held its monthly meeting Aug. 9 at the Pepper Pike country club. About 65 members attended, 50 of them coming early for golf. A buffet supper was served out of doors. The new president, Alexander T. Wood, presided but no business was taken up at this meeting.

Marine Review

Reg. U.S. Pat. Off.

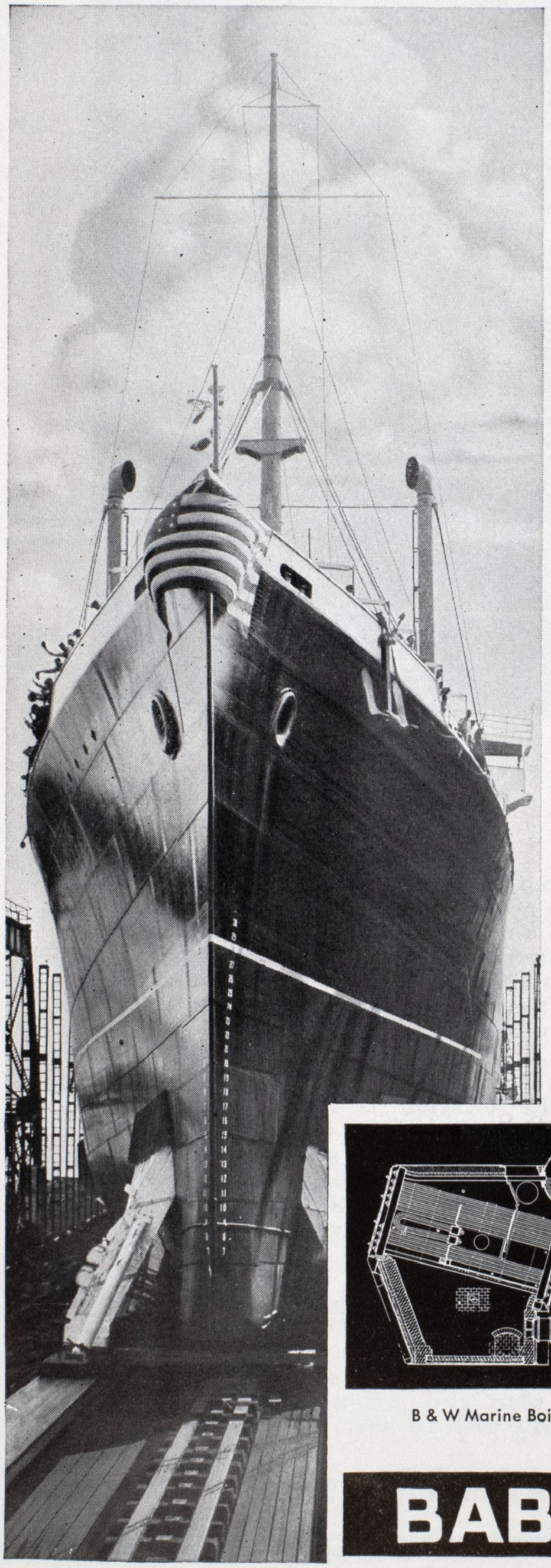
The National Publication Covering the Business of Transportation by Water

Full Rigged Ship, The M. P. GRACE

September, 1933

Vol. 63, No. 9, September, 1933, issue of MARINE REVIEW, published monthly at Cleveland, O. Entered as second class matter at the post office, Cleveland, O., under act of March 3, 1879. Subscription price $3 a year in U. S.; Canada, $4; Great Britain £1:4s; single copies, 35c

Babcock & Wilcox Leads in Boiler Equipment for Ships Constructed or Reconditioned under Jones-White Act



Confidence in Babcock & Wilcox Marine Equipment is expressed by the American Merchant Marine in the choice of B & W Boilers and Auxiliary Boiler Equipment for the ships constructed or reconditioned within the past five years under the Jones-White Act.

Of the forty-two new ships built, thirty-one are passenger-and-cargo ships, and two are freight-car transports. After a comparison of propulsion systems, the owners of thirty-two of these thirty-three ships adopted propulsion by steam as the most economical method . . . and of these, thirty are obtaining the most efficient and economical operation through the use of Modern Steam from Babcock & Wilcox Boilers and Auxiliary Equipment.

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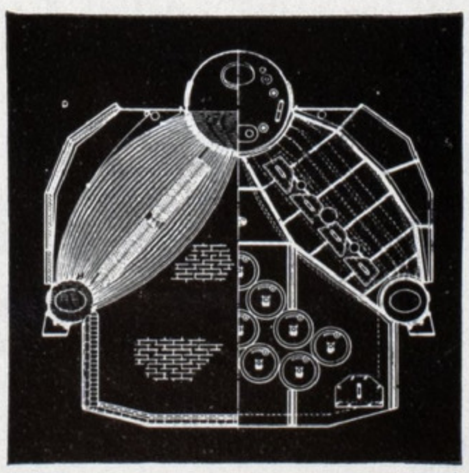

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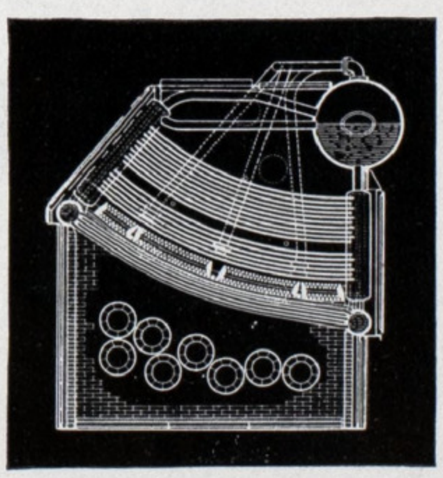

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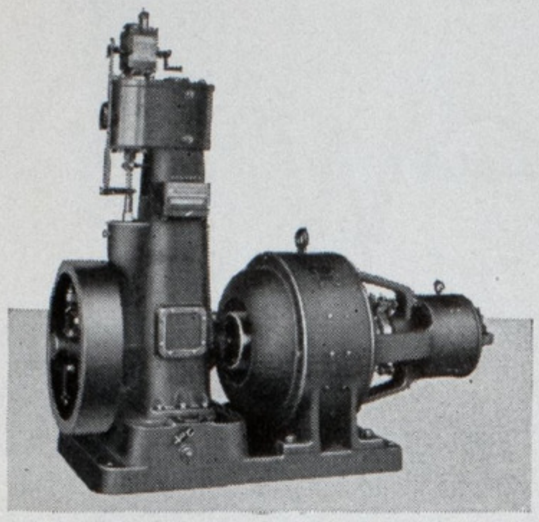

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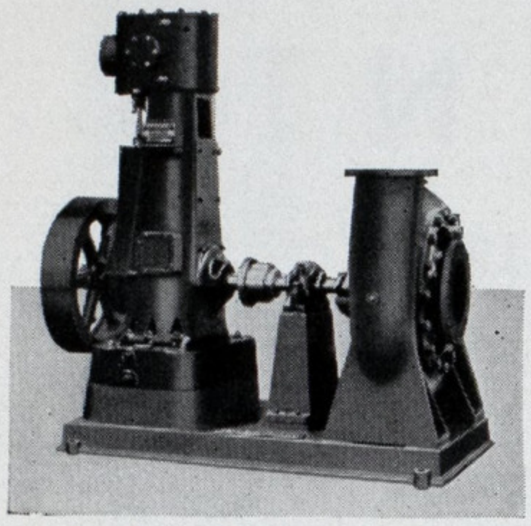

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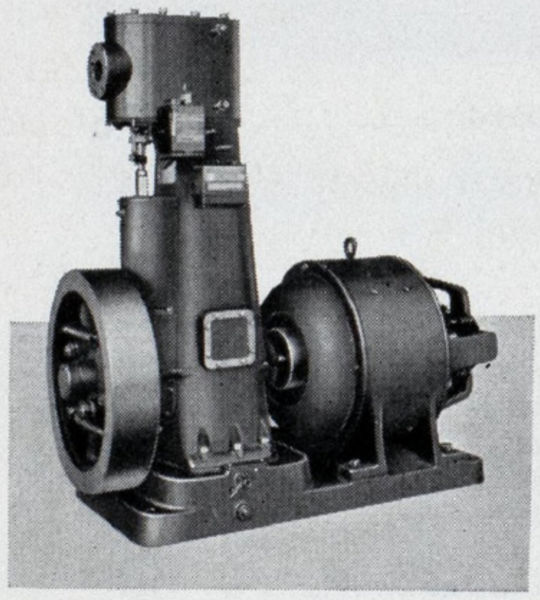

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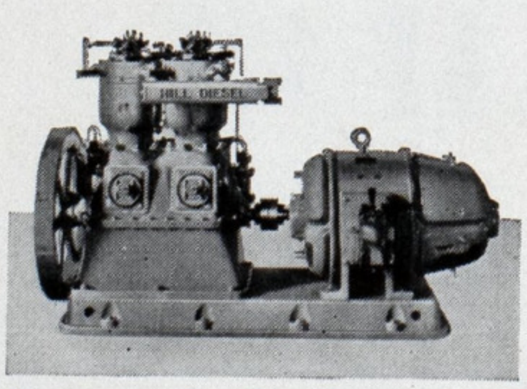

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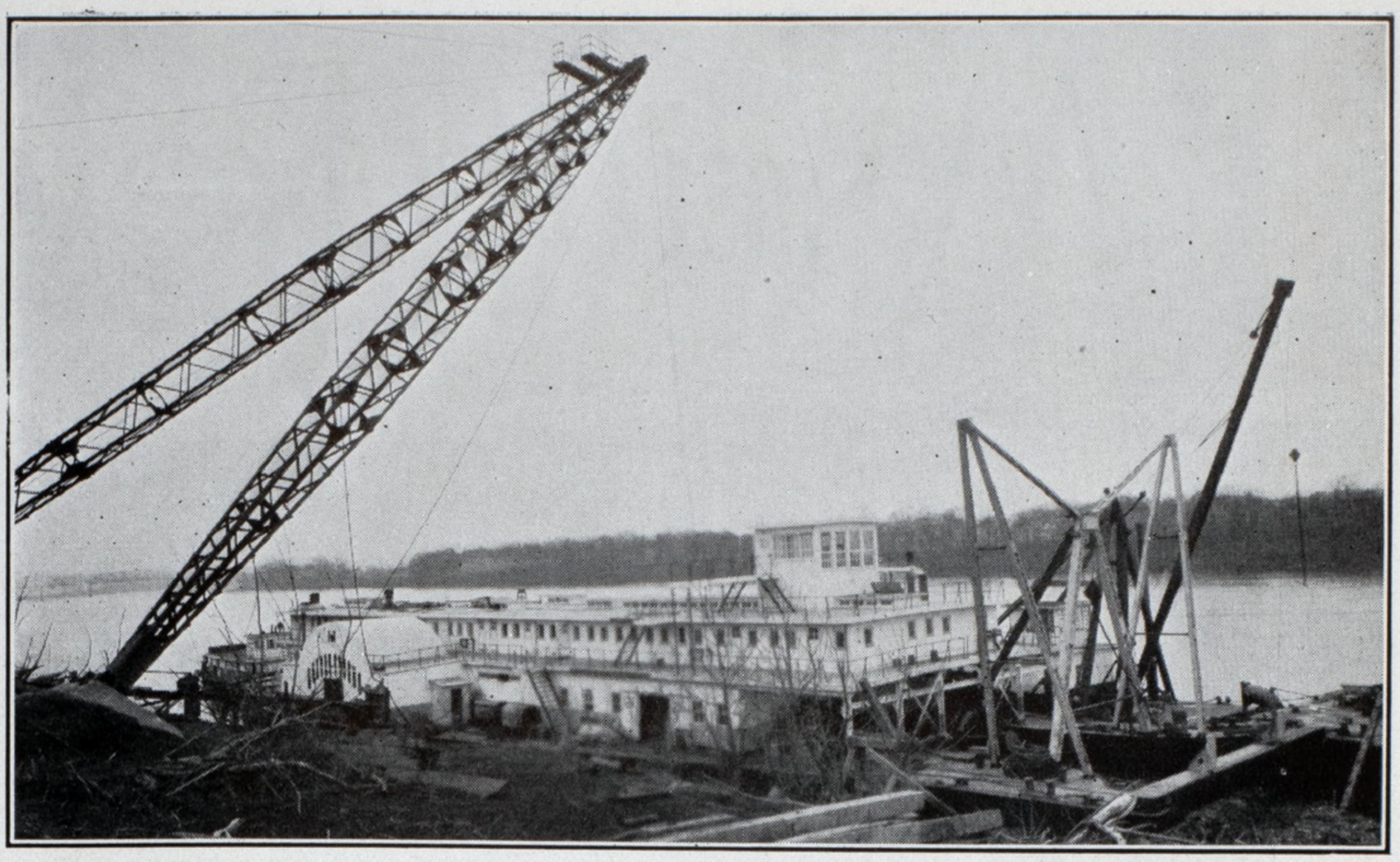

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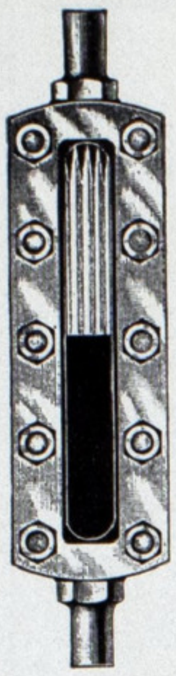

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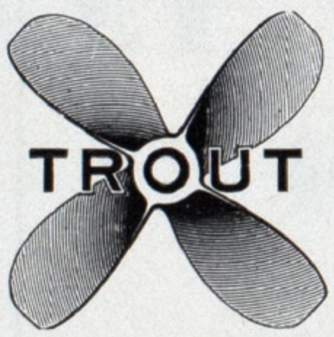

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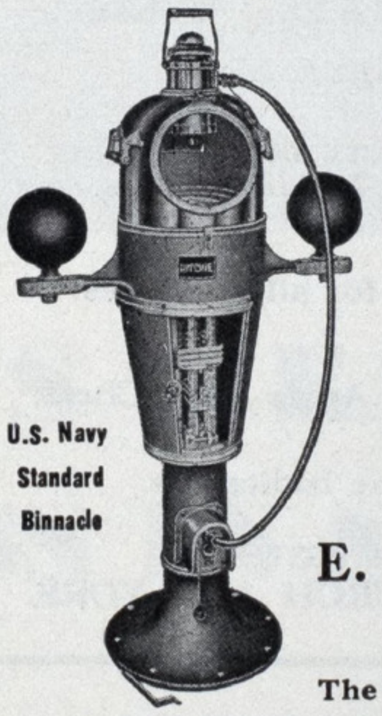

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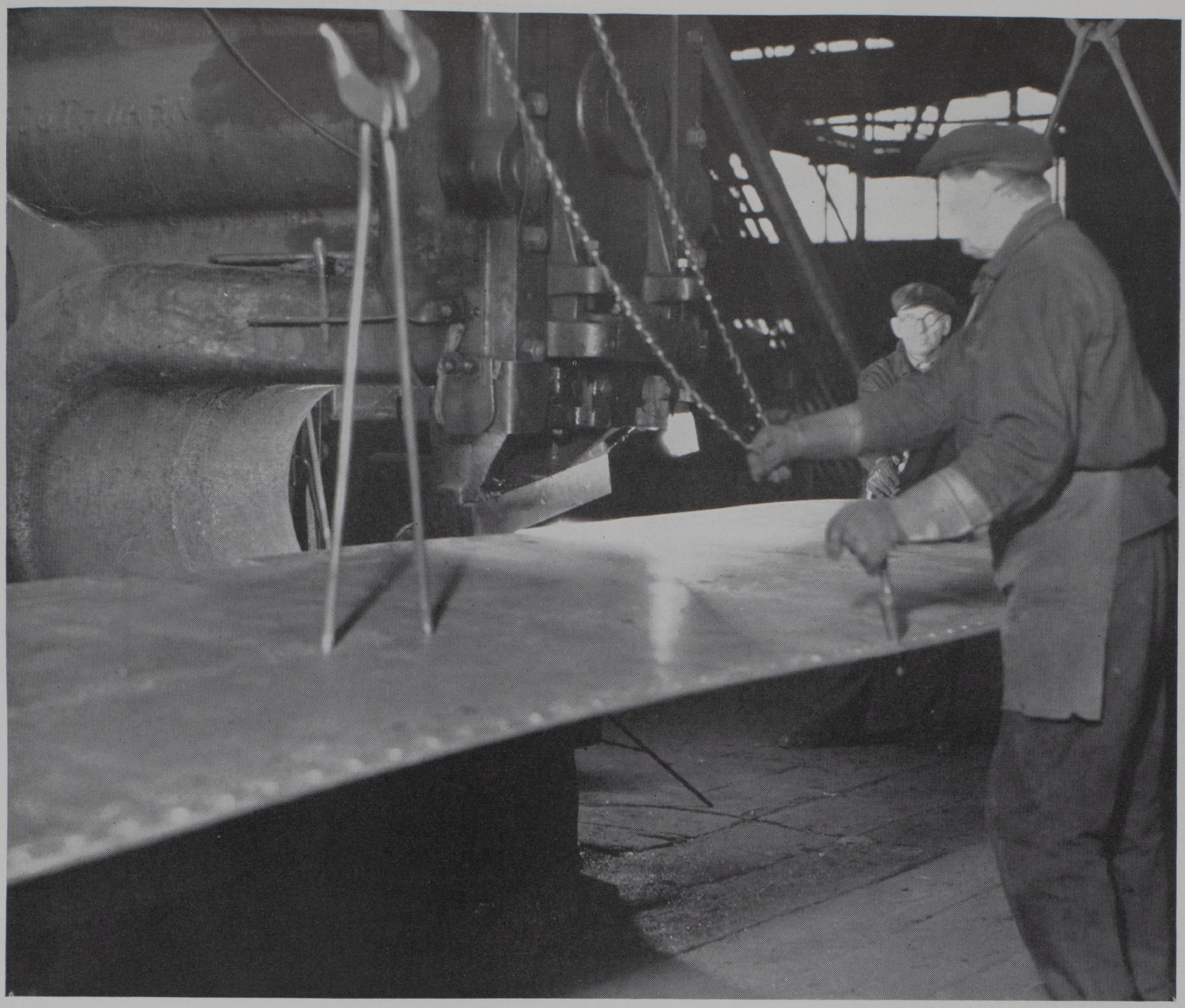

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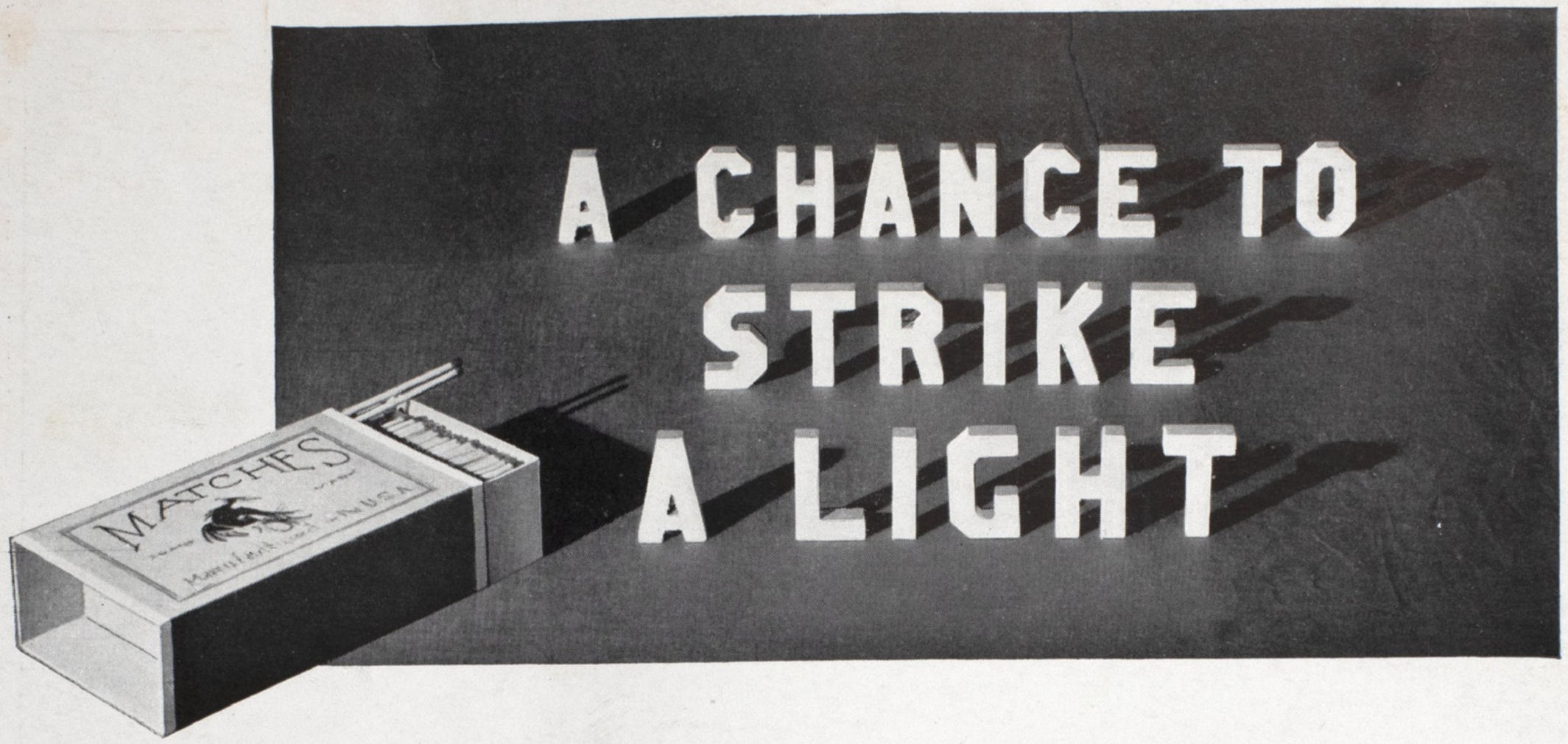

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